History taking pattern

General Approach

Introduction

I would like to wash my hand wear my PPE
Good morning, I'm Dr. Md marwan Kabir, One of the ED registrar. May I know your name and age please?
Nice to meet you Mr.----, I have been asked to take some data from you. Is that ok for you?
How can I help you?
oh. I am so sorry to hear that. Are you in any pain? Can I offer you a pain killer?
Are you comfortable now?

For some critical cases like chest pain, abdominal pain, heart raising, any kind of bleeding
I would like to move you to the resuscitation area and check your vital sign - also I need to connect you to heart monitor.

Do you have someone to attend with you? is it ok if a nurse attend with us?

Presenting complain

Can you tell me more about this ----------?

History of presenting complain

For Pain - SOCRATES

S - Site
O - Onset
C - Character
R - Radiation
A - Associated symptoms
T - Timing (is pain worsening or improving with time)
E - Exacerbating or any relieving factor
S - Severity (any chance you can score your pain from 1 - 10 and 10 being the worst)

SOCRATES cases as follows

- Throat pain - Odynophagia +/- Dysphagia, or change of voice.
    - Current illness? Any change of voice? Any problem in swallowing? Do you have throat discomfort? Do you have hearing problem? Did you bite your tongue?
- Headache - Cluster headache, Trigeminal neuralgia, Temporal arteritis, SAH, Raised ICP, Tension headache, Migraine, Coital cephalalgia, Sinusitis, HIV
    - ODSCCIPPRA
        - A - Associated features - Have you noticed anything else wrong? Left eye watering? nasal congestion? Swelling around the left eye? Drooping of the eyelid? Do you have high temperature? Did you wet yourself? Any recent head or neck trauma? Ask about OCP and postpartum period for cerebral venous sinus thrombosis.

Dr Marwan Kabir

- Chest pain - ACS, Aortic dissection, Cocaine induced, Pulmonary embolism, Pericarditis, Boerhaves's disease, Mallory waise tear
- Abdominal pain - RUQ (Biliary colic, Acute cholecystitis, Cholangitis) Renal colic, Ectopic, Ovarian cyst
    - Acute cholecystitis - fever - can discharge with antibiotics
    - Cholangitis - fever, jaundice - need admission)
- Pelvic pain - PID, Ectopic, Appendicitis
- Testicular pain - Torsion, Epididymitis, Tumor, Renal colic
- Back pain - Cauda equina syndrome, Sciatica (malignancy, infection, inflammation, or fracture)
    - For sciatica – can discharge with analgesia and review with GP clinic and printed leaflets
- Knee pain – Arthritis
    - Any family history – arthritis
    - Any history of trauma?
    - Any bleeding disorders?
    - Any color changes?
    - Any temperature changes?
    - Where is the swelling?
    - Is it hot to touch?
- Leg pain - (Claudication) - acute limb ischemia, DVT
    - Where is the rash?
    - Which side of the leg? Anterior or posterior?
    - Any numbness of the leg?
    - Any weakness of the leg?
    - Any trauma?
    - Compared to other leg is there any change in size?
    - Is there any color change?
    - Any change in temperature?
    - Any change in hair distribution?

For Painless complains - ODIPPARA

O - Onset
D - Duration
I - Intensity (is it affecting your daily activity?)
P - Progression
P - Previous episodes
A - Aggravating factors
R - Relieving factors
A - Associated symptoms

ODIPPARA cases

- Throat discomfort - Dysphagia +/- Odynophagia or change in voice
    - Is there difficulty in initiating swallowing itself?
    - Difficult for solid or liquids?
    - Any gurgling sound on swallowing on swallowing liquids?
    - Any regurgitation of food?
    - Can you eat a complete meal?
    - Is the food stuck in throat or food pipe?
    - Do you have mouth ulcers or recent aspiration of foreign body?
- Dizziness - Central VS peripheral

Dr Marwan Kabir

    - Is it spinning, Lightheaded, loss of balance, or black out?
    - Any ear problem e.g.: noise or ringing, pain, fulness, hearing loss, discharge?
- Transient ischemic attack/ stroke
    - ODSCCIPPRA
    - O - Onset
    - D - Duration
    - S - Severity - was it affecting day today activity?
        - Weakness - Did you have weakness? Limb or facial? If so, complete paralysis?
        - Sensory disturbance - Did you have numbness? Was the rm completely numb?
        - Visual disturbances - Did you have blurring or loss of vision? Unilateral?
        - Expressive dysphasia - Were you able to speak at all?
        - Receptive Dysphasia - Were you able to understand any communication?
    - C - Course - Was it worsening, improving, same or fluctuate?
    - C - Characteristics - Was it Lightheaded? Dizziness? Loss of balance? LOC?
    - I - Intermittent or continuous or on and off?
    - P - Precipitating factors
    - P - Previous episodes
    - R - Relieving Factors?
    - A - Associated features - Have you noticed anything else wrong? Any change of voice? Any problem in swallowing fluids? Did you lose hearing? Do you have ear discharge? Did you bite your tongue? Did you wet yourself? Did you injure yourself? Any witness? Any recent head or neck trauma?
- Visual disturbances - Amaurosis fugues, Optic neuroma, Glaucoma, Digoxin, Migraine, Temporal arteritis, Retinal detachments, Papilledema
    - Transient visual loss - a curtain falls across over the visual fields. It is commonly caused by thromboembolic even OR giant cell arteritis
    - Temporal arteritis - Transient visual loss; >50 yrs., scalp or jaw pain.
    - Optic neuritis - Gradual loss of visual acuity. Painful and eye movements may hurt. Color vision also deteriorates
    - Glaucoma - Blurred vision or seeing haloes around lights. Sever pain with nausea/ vomiting, decreased visual acuity.
    - Diagnosis - Heart disease, reduced visual acuity, photophobia and blurred or yellow vision
    - Migraine - Headache, nausea, Flashing lights or zig-zag lines around lights.
    - Cluster headache - Headache, ipsilateral nasal and conjunctival congestion
    - Retinal detachment - Recent trauma, flashes or floaters and loss of vision
    - Papilledema - Unilateral or bilateral and symptoms of raised ICP
    - Central retinal or vain occlusion - sudden painless visual loss
        - Is its actual loss of vision, blurring of vision, double vision or decreased or loss of color vision?
        - Is it left, or right eye?
        - Painful or painless?
        - Did you have haloes, flashing lights or did you feel that a curtain falls across over the visual field?
        - Does the eye get red or watery, any discharge or sensitivity to light?
        - Does the eye lid seem to droop?
- Palpitations - +/- pregnancy, (anemia or cardiac cause)
    - ODSCCIPPRA
-

Dr Nav Kaur

- SOB - Lupus and dialysis with fluid overload, Pulmonary embolism
    - Ask about cough – dry or sputum, with blood?
    - Any wheezes
- Cough - Asthma, Pulmonary embolism, Pancoast tumor, TB, Pneumonia, HIV
- Jaundice - Pre, Intra, post hepatic jaundice
- Rash - Aspirin, or IBD (abdominal pain, leg ulcer + rash)
    - The system involved depends on the site of the rash
    - If systemic symptoms, the cause is peripheral like vain or artery
    - If have systemic symptoms – Inflammatory like IBD
- Urine retention - BPH, Tumor, Stones
    - Ask questions regarding tommy and back for cauda equina syndrome
- Swollen Knee joint - Arthritis, Infection, Trauma, Hemophilia
- Lower limb swelling - puffiness of face - Hematuria, Proteinuria, (Nephritic syndrome)
- Myalgia - Thalassemia with translator
- Weight loss or weigh gain

The special station where ODIPPARA used

- Travelers Diarrhea, or Fever - Travel history
- Male or Female urethral discharge, Dysuria - Sexual history
- Primary or secondary amenorrhea- menstrual history
    - No need ODIPPARA
    - Ask about systemic symptoms only
    - Menarche
    - Was the cycle regular before?
    - When was the LMP?

For event WHO approach?

Who - Who has seen the with you the event?
When - When did this happened?
Where - Where did this happened?
Why - Why do you think this happened to you?
How - How many times this event over the last 6 months?
What - What happened before/ during/ after the event

WHO approach for events?

- Falls
- Syncope
- Fits
- Misbehaving
- BRUE / ATLE
- Confused RBS is low. (Falls, Syncope, Fits, Misbehaving, ALTE, Confused RBS is low)

Before the event -

What were you doing before the event?
CNS - was there headache, neck or back rigidity? Vision problem or any eye sensitivity to light before the event?
CVS - Was there a chest pain, heart raising or sweating before the event?
Vasovagal - Was there a cough, sneeze, or passing urine or stool before the event?
Orthostatic hypotension - Did that happened after standing from sitting position?

Dr Nadwan Kabir

During the event -
Did your witness tell you that you had a form in the mouth and your eyes rolled backwards?
Where their jerky movements? - if yes, one limb or all limbs
Did you lose consciousness? - if yes how long?
Did you wet or soil yourself?
How long did it take for you to recover?

After the event -
If you have fell down were you able to get up on your own?
Did you recover fully or did you have confusion after the event?
Did you injure yourself or did you notice bleeding from any orifice?
MUK- any numbness, weakness, or paralysis in your limbs before or after the event?

For associated symptoms

Review of systems
GIT - do you feel sick? Did you throw up? do you have tommy pain? Any changes of bowel movement?
GUT - Any change in urine? Pain while passing urine?
Dermatology - Any skin changes noticed? any rashes or any lumps or bumps in the body?
Miscellaneous - Do you have high temperature? any loss of weight? night sweats?
Respiratory - SOB, Wheeze, or cough?

Past medical history - any past medical history?

Past surgical history - Any past surgeries?

Drug and Allergy - Any medications currently on? any allergies?
Any blood thinning medications like aspirin? Plavix or warfarin?

Family history - any disease running in your family?

Social History -
1. Whom do you live with and where do you live?
2. Do you smoke or drink alcohol? or by any chance do you use any illicit drugs?
3. What do you do for living?

Sexual history - Are you sexually active? are there any other partners?

Travel History - Only in some cases

From women

Menstruation - Your last menstrual period? by any chance are you pregnant?

Would you like to add anything?

Ask about - ICE
I - Idea - What is your idea?
C - Concern - What is your concern?

Dr Marwan Kabir

E - Expectation - What do you expect from us?

Then explain the patient

I appreciate your concern. according to your data you gave the most likely diagnosis is ----------(or if it is a bad diagnosis - I'm sorry to tell you that this could be cancer. But I need to exclude other possibilities.

For that I need to move you to (1. Disposition - Observation, Isolation, Resuscitation, Consultation, Refer, Discharge, Admission), (2. Examination - general examination and vital signs), (3. Test - Blood test, imaging, heart tracing +/- camera scan)

End - Do you understand what I have told you? is that plan ok for? Do you have any questions from me? Thank you very much for giving your time with me.

Specific management plan

Throat pain

- If the presentation clear about thyroid swelling –
    - I will keep you in Major room, I will do examination of the neck, face and heart. I will do some blood test including TFT and heart tracing and jelly scan called USS. If all normal. I will discharge you to follow up with GP with printed leaflets. If any abnormality found I will refer you to medical team.
- If the presentation is like neck swelling only
    - The discomfort can be due to the swelling in the food pipe, wind pipe lymph node or the gland in the neck called thyroid gland. In order to come to diagnosis. I will keep you in observation room, do general examination including your neck, face and heart and lung. I will do some blood test called inflammatory markers, heart tracing and USS of the neck. If any abnormality found I will refer you to the ENT doctor for further evaluation. If all normal, I will discharge you with printed leaflet to follow up with GP.

Headache

- Trigeminal neuralgia
    - Keep you inMajor room. Monitor the vital signs. Examine your brain, face neurological system. I will do some blood test like inflammatory markers. If all normal. I will discharge you with a drug called carbamazepine to follow up with neurologist with printed leaflets.

Chest pain

- Keep in resuscitation room
- Keep you attached you to the cardiac monitor
- I will examine your heart and lung and do some blood test called cardiac enzymes troponin I.
- According to your data, you are having a typical chest pain, age is less than 45, you have significant ST depression and no risk factors. So, further management, we have wait for the troponin levels to see. If the troponin is positive – I will refer you to cardiologist and you will need an invasive procedure called the percutaneous intervention. If troponin negative, I will repeat it after 3 hrs. Until then I will give you aspirin 300mg, Plavix 300mg now. Is that ok for you

Abdominal pain

- Renal colic
    - Admission criteria
        - If patient having persistent pain
        - Stone size > 5mm and B/L
        - If abnormal kidney function
        - If UFR is having significant infection

Dr Imran Kabir

- If all are not seen
  - Refer to GP clinic with printed leaflet and R/V to A & E with any worrying symptoms
- RUH pain
  - Ascending cholangitis
    - Fever with jaundice
    - Need admission
  - Acute cholecystitis
    - Fever, RUH pain, No jaundice
    - If LFT deranged need admission.
    - If normal can discharge
  - Biliary colic
    - Discharge and refer to GP with printed leaflets

Dizziness

- Peripheral
  - Keep in observation room, examine your ear and central nervous system and do a special test called Dix-Halp like maneuver. Do some blood test including inflammatory markers, FBC and heart tracing. Specific management include Epley maneuver.

Travel History

Initially go as general approach, then if the station is about diarrhea or prolong fever take detailed history about travel

Travel history
Have you travelled anywhere recently in last 6 months?
if yes -

- Location
  - Where did you travel?
  - Where did you stay during travel - rural or urban?
  - Type of accommodations?
  - Which places did you visit?
  - Other travelers also affected?
- Time
  - When did you travel?
  - When did you return?
- High risk activity
  - Did you have any procedure or receive any blood transfusion or seen any medical advice during travel?
  - Did you have any recent contact with someone who is sick with high temperature?
  - Did you drink or swim in any contaminated water?
  - Did you notice any insect or animal bite?
  - Did you use a mosquito net?
  - Did you eat seafood or homemade food?
- Immunization
  - Did you have an immunization or chemoprophylaxis before travel?

Dr Marwan Kabir

Gynecological History

For patient with pelvic pain

I need to ask you some personal question, but very important and they are difficult. hope you understand. Everything you say will be confidential and you can interrupt me any time when you feel

- Have you noticed any vaginal discharge? If yes - What is the nature - the color, amount, smell
- Are you sexually active? If so with whom? Is there any other partner?
- By any chance could you be pregnant?
- Have you been exposed to sexual transmitted diseases before?

Menstrual history

- When is your last menstrua period?
- How long the menstruation last?
- Is it regular?
- How is the flow?
- Do you experience this pain during your menstruation?

Obstetric History

- Have you had any pregnancy before?
- How is the outcome?

On management plan -
Indication for admission - Fever, Systemic unwellness like vomiting, Pregnancy
If suspected PID - advice to refrain from sexual activity until treated. Contact tracing likely to be required. Refer to genitourinary clinic.

Bleeding patient

Initially move to resuscitation area and check for vital signs
Questions should ODIPPARA approach
All complains with bleeding –

- Epistaxis,
- post tonsillectomy bleeding,
- UGIT bleeding,
- LGIT bleeding,
- Hematuria,
- Vaginal bleeding

Bleeding assessment-

- How often?
- Is it before, during or after (passing stools/ passing urine/ vomiting)?
- Any clots passed?
- How many pads changed/ how much bleeding - like teaspoon or cup?

Dr Marwan Kabir

- Any bleeding from any other orifices?

Sexual History

For complains like dysuria or urethral discharge

I will take you to the privet room. Is anybody attend with you? Do you mind a nurse attend with us as a chaperone? Any information you provide will be confidential and these are question asked from all patients. If you feel uncomfortable you can interrupt from me any time. Is that ok for you?

- Ask about symptoms - ODIPARA
- Do you have any urethral discharge? / Any vaginal discharge?
- If any discharge – What is the color? Is it smelly?
- Any skin changes in the privet area?
- Any ulcers?
- Any other symptoms?

(**6P** - STI and HIV risk assessment- yes is high risk

- People
  - Are you currently sexually active? Any other partners?
  - How many partner/s over the past 1 yr.? Men women or both?
  - If men, are you receiving or giving sex?
  - How much do you know about your partner/s?
  - Have you or any of your sexual contacts exchange money for sex?
  - Any of your partner from different country?
  - Any of your partner a bisexual man or engaged in homosexual activity?
  - Any of your partner injecting illicit drugs?
- Pregnancy
  - Are you trying to get your partner pregnant?
- Protection
  - Was it protected sex like condom?
- Practice
  - When was the last sexual act?
  - Do you have vaginal, anal or oral sex?
  - Was this sexual encounter consensual?
  - Were you by any chance under effect of alcohol or any illicit drugs?
- Past
  - Have you or your partner ever been tested or diagnosed for HIV or another STD?
  - Would you like to be tested? If no - I'm sorry, you won't be given post exposure prophylaxis. You will also need an HIV test after the treatment, to check that it's been successful.
- Problems
  - Anything else about your sexual practices which I need to know to ensure your good health.

Management

- 3 aspect

Dr Mohsin Kabir

    - Pregnancy
    - If concern about pregnancy only – consider. Give MAP within 72 hrs of sexual act
- Post exposure prophylaxis
    - PPE for HIV given within 72 hrs if high risk. Given up to 4 weeks. Do blood test repeat blood test in 12 weeks. Ask to avoid sex and giving blood transfusion
    - If low risk – no need PPE.
- Management of the symptoms
    - If symptomatic – give Azithromycin 1g stat and asked to review in GUM clinic

Dr Marwan Kabir

Pediatric History Taking

Stations
ODIPPARA approach

- Genitourinary - Dysuria +/- Urethral discharge
- SOB + wheeze - Asthma if > 2yrs, Bronchiolitis if < 2yrs
- Limping child - Tenosynovitis (1 - 3 yrs.), Perthes disease (4 -10 yrs.), Subluxation of femoral epiphysis or SUFE (>10yrs)
- Rash – ITP, HSP, meningococcal meningitis
- Vomiting - Pyloric stenosis (age in weeks + non bilious vomiting), Intussusception (months + bilious vomiting)

This can be used for child abuse and +/- Non accidental injury
ODIPPARA approach

- Neglect - History from father of child who has ingested ecstasy. (WHO approach)
- Neglect - History from a mother of a child who has a dental abscess.
- Physical abuse - With elbow or femur fracture brought for sore throat
- Physical abuse - with femur fracture brought with limping

Event
WHO approach

- Fits: Febrile convulsions
- ALTE/ BRUE

Explain new diagnosis

- Diabetes mellitus - presenting with DKA
- Addison's disease - presenting with Addisonian crisis
- Asthma - presenting with life threatening asthma

---

1. Introduction

I am Dr. Marwan , ED registrar, May I know your name and relationship with..... please?
How can I help you?
I am so sorry to hear that. How is your son now? Is he comfortable right now?
If in pain or is not comfortable - I will move your son to our team. Don't worry, your son is in safe hands with our team.

After past medical history

Prenatal - Any problem in pregnancy?
Natal - What about delivery? Is it normal?
Post-natal - After delivery any admission to hospital? When did you get discharged?
Developmental - Is he growing naturally/ Is his development UpToDate?
Immunization – What about immunization? Up to date?

Dr Marwan Kabir

Social history

1. Where does ..... live and who lives with him?
2. Where is his father/ mother? Did you inform him/her about .....? condition?
3. Any other carer for.....
4. Do you or anyone who lives with..... smoke, drink alcohol or by any chance use any illicit drugs?
5. What do you do for living? Any financial or other problem at home?
6. Any other children at home? Are they Ok?
7. Were social services by any chance currently or previously involved with the care of the child?

Management

Dysuria

- If no sexual assault:
    - Most likely diagnosis is urinary tract infection. Will keep in observation, do general examination and run some blood test including Full blood count, kidney function and urine microscopy and culture and according to the findings, we will start on antibiotics and discharge and ask to revive with pediatrics
- If with sexual assault
    - Will keep him in major and do general examination. Run some test like urethral swab and blood test like STD test and admit the patient under pediatric consultant for further assessment of abuse and inform the social services for further assessment

Shortness of breath

- According to your data the most likely diagnosis is narrowing of the airway called bronchial asthma
- If previous episode – exacerbation
- If first episode
    - I will move him to resuscitation room and I will give him some oxygen and according to his vital signs, I will see whether he needs further treatment like he needs dilators and X-ray or admission. If improves
- According to data its inflammation of bronchioles called bronchiolitis
    - The treatment is clearing his airways and give him some oxygen if needed.
    - According to his vital signs and assessment, examination we will see whether he needs x-ray or admission
    - Criteria for admission
        - Poor feeding > 50% of normal
        - Fast breathing > 70% of normal
        - Low Spo2
        - Not improving

Limping

- Transient synovitis (1 – 4 yrs)
    - According to your data and according to your age group, the most likely problem is inflammation of the hip joint which is called transient synovitis
    - Regarding your concern regarding x-ray it is no needed, but we have to do full examination of the musculoskeletal system and run some blood test and do USS. I

Dr Nawaf Kabir

will give you printed leaflets and instruction of this condition and discharge with analgesics.

- Perthes disease (4 – 10yrs)
- Slipped upper femoral epiphysis (>10yrs)

Rash

- HSP
  - The most likely problem is inflammation of the small blood vessels called Henoch Schoenlein purpura.
  - Regarding your concern, the meningitis, it is unlikely, because no brain symptoms
  - If patient had urine change or any tommy pain – think about complication and think about admission.

Explaining A New Diagnosis

Cases can be presented

- Diabetes mellitus - presenting with DKA
- Addison's disease - presenting with Addisonian crisis
- Asthma - presenting with life threatening asthma

1. Introduction

I would ensure the seen safe and hand over my patients to my colleagues and I will switch off my bleep. I will look for any notes available about the patient.

Hallo. I'm Dr. Marwan, on of ED registrar. may know your name and relationship to the patient please. Nice to meet you ..... I have been asked to inform you regarding ..... condition. Is that ok for you?
I appreciate your concern and I assure you that he is in safe hands and we are here to help you. I will explain you everything in a moment.
Shall we move to a quiet room? Is anybody attend with you?
Is it ok if a nurse attends with us?

What do you know about .....? condition so far.?

Repeat what the patient says and confirm the problem

2. Explain the disease

You are right Mrs..... according to ..... blood results and examinations, I'm very sorry to tell you that..... he has a disease called diabetes mellitus. / Addison's disease/ Asthma. Do you have any idea about it?
If no

Dr Marwan Kabir

1. Diabetes mellitus is a disease cause by lack of hormone called insulin in our body which will result is problem with our glucose metabolism and there will be increased blood sugar production in the body.
2. Addison's disease is a condition causes by the malfunction of one of our glands called suprarenal gland which results in lack of production of a hormone called cortisol.
3. Asthma is disease of our airway which is causes hyperstimulation resulting in constriction of the airway causing reduced air entry

3. Explain the crisis

He presented with critical condition which is called

- Diabetic ketoacidosis
    a. Increased blood sugar levels in our body resulting in more acid production in our body causing shock which is called diabetic ketoacidosis. Do you understand?

- Addisonian crisis
    - Low blood glucose levels due to low blood sugar production and Low blood pressure due to salt loosing through the kidneys called Addisonian crisis. Do you understand?

- Life threatening asthma
    - Critical condition where his airways a closed due to constriction of the small airways causing reduced air entry into the lungs and reduced oxygen to the body tissues called life threatening asthma. Do you understand?

4. ICE

What are your concerns?

Why did he get this crisis today?

May be because of any infection, or not taking his usual medication or any stress or any increased intake of sugar amounts than usual.

5. Explain the short-term managements

I appreciate you concern. As he is in critical condition right now, he will stay in ICU for few days until the blood reports return to baseline. Is that clear for you?

6. Explain the long-term management

I'm sorry to say this he will have to continue the medication for his life long time. he will have to continue the injection form for his life long time. I will provide you information card and other video resources how to deal with such patients. He will have to carry a disease recognizing bracelet in his hand all the time. Do you have any question regarding this?

7. Brief history

- In order to complete my notes can ask you some information?

Dr Marwan Kabir

Past History

- Does he have any past medical disease?
- Any previous surgeries?
- Any allergies?

Pregnancy History

- Any medical problem during the pregnancy? During delivery - was the child's birth weight normal? Postnatal period - did his mother had any admission after delivery or did she go home in the same day?

Development and immunization

- Is the child growing and developing normally?
- Is his immunization UpToDate?
  Ok I will review later.

Family History

- Any family history of similar disease?

Social history

- Whom dose he live with? What do you do for your living?
- Any other children at home?

Physical abuse – Suspicious of Non-Accidental injury

The setting

- I would like to turn off my bleep and make sure the room is quiet
- I will hand over the department to colleagues
- I ensure I accompany a nurse with me
- I will read any notes of the patient

Introduction

- Hallo, I am Dr, Marwan, ED registrar, may I know your name and relationship to the child please?
- Nice to meet you, I have been asked to take some data regarding your son. Is that ok for you?
- How can I help you?
- Oh, I am so sorry for that. Now how is your son? Is he in any pain?
- Ok. Can you tell me more about his symptoms?
- Ok. Does he have any other symptoms?

Regarding the NAI

- So, Mrs…. when I am going through his notes, and I found out that he has been limping/ having a swelling in the arm. Do you know anything regarding that?
- We have done some x-ray. Do you want me to show it to you?
- Ok you see in this x – ray, there is a broken bone in his. Do you know anything regarding this?

Dr Marwan Kabir

- Was he complaining any pain?
- Did he have any trauma?
- Does he complain of any numbness or weakness?
- Any headache or any jerky movements?

Other history

- Does he have any past medical history?
- Has he had any surgeries before?
- Any allergies?
- Is he on any medications?
- Any disease running in your family?

Birth and development

- Can you tell me, what about his pregnancy? Are there any complications?
- How was his delivery? Did he get admitted following his birth?
- Has his development UpToDate?
- Has had his immunization on time?

Social history

- Can you tell me, where doe he lives with and with whom?
- Any other children at home? Are they ok?
- May I know where is your husband/ wife?
- Does any one living with/ you smoke or drink alcohol and by any chance take illicit drugs?
- Any other carer for this child?
- What do you for living? Are you finically coping with?
- Have the social services involved with this child or with any of your child previously?

ICE

- What do you think the cause for this fracture?
- What is your concern?

Management

As this child is found to be having a fracture, I need to keep him in the major area and I need to examine his whole body and do other x-rays to look for any other injuries. As you said this child had history of trauma, we are suspecting a non-accidental injury.

Do you accuse me?

No, no, not at all. You will agree with me that we have to think about his safety and best of interest. We are not missing anything. So, we have to admit him to the pediatric ward, involve the orthopedic team. As it is our normal practice, we have to involve the social service team also.

Dr Marvan Kabir

Psychiatric History Taking

General approach

1. Start: Introduction, Consent, Chaperon, offer pain killer, Complaint, Vital signs, Open question
2. Present history: ODIPPAR (Painless)
3. Psychiatric history: Depression, Cognition, Psychosis, self-harm
4. Past medical, Surgical and psychiatric History
5. Family history
6. Social, Forensic
7. Judgment, Insight and ICE: Idea, Concern and expectation
8. DD, MSE, presentation and Management plan
9. End: Mental capacity, Understand, Further questions, thanks, Wash hands

Depression symptoms: core and Biological symptoms

- Persistent sadness or low mood
- Loss of interest or pleasure
- Fatigue or low energy
- Sleep
- Appetite
- Libido
- Concentration
- Low confidence
- Suicidality
- Agitation
- Slowing of movement
- Guilt

Cognitive symptoms

(Time, place, person)

- Concentration
- Perception of current/ future situation
- Perception of self

Psychotic symptoms

- Hallucinations: Auditory, Visual, Olfactory or somatic
- Thought abnormalities: Thought blocking, withdrawal, Insertion or broadcasting
- Delusional perception
- Passivity

Self-arm

- Previous
- Current
- future

Dr Marwan Kabir

Introduction

Good morning. I'm Dr.Marwan , One of ED registrar, May I know your name and age please?
I have been asked to take some data regarding your mental health). These are questions we ask from everyone and anything you would tell me will be confidential. Would that be Ok for you?

Are you comfortable now? Do you have any pain?

How can I help you today?
If patient remains silent - We are here to help you.
Oh, I'm so sorry to hear that.

Can you tell me more about your symptoms?

Then ask about ODIPPARA –
Onset – How did it start? Suddenly or gradually?
Duration – When did it start? Do you still feel bad?
Intensity – Is it affecting your daily living?
Progression – Is it worsening or improving or same? Is it continuous or on and off?
Previous episode – Did you have same problem before?
Aggravating factors – Why do you feel bad?
Relieving factors – Does anything let you feel good?

Mental state examination -

1. Depression
2. Cognition
3. Psychosis
4. Self-harm

1. Depression questions

- Sleep - Any difficulties in getting sleep?
- Loss of interest - Are you enjoying things like before.?
- Libido - Any change in your sexual drive?
- Lack of energy - Do you feel Weak?
- Appetite - Any change in your appetite?
- Mania - Do you feel periods of feeling high?

2. Cognition

- Concentration -
    - What is the year, season, date, day, month?
    - Where are we now?
    - Do you remember who I am?

3. Psychosis

- Thought disorder
    - Thought blocking, withdrawal, insertion
    - Does someone withdraw or insert ideas?
        - Do you feel some one interrupt your thoughts, taking from your mind or put thoughts in to your mind?
- Hallucinations
        - Do you hear any voices which no one can hear?
        - Do you see smell or taste anything which others cannot?

Dr Marwan Kabir

        - Do you ever feel someone or something is touching you when there is nobody there?
- Passivity
        - Do you feel that someone or something is controlling you?

4. Self-harm

- Current self-harm
    - Do you have any current self-harm to yourself or others or any suicide attempt? - If yes proceed with next questions
    - What kind of self-harm? What kind of suicide attempt?
    - Previous
        - Did you try to harm yourself in the past?
    - Current
        - What were your status while you attempt suicide, under alcohol or by any chance illicit drugs?
    - Future
        - If you go home, will try to harm yourself?
- Previous self-Harm
    - Did you have previous self-harm - to yourself or others or any suicide attempts in the past?
    - If yes, what method of self-harm or suicide were involved? Did you gain any help as a result of yourself harm or suicide?
    - how suicide attempt discovered?
- Future self-Harm
    - Do you have self-harm plan to yourself or others or any suicide attempts in the future?

Past medical surgical, psychiatric illness?

Drug History - Are you on any medications?

Allergies - Do you have any allergies?

Family history - Any disease running in the family?

Social history

- Are you in stable relationship?
- Whom do you live with and where do you live?
- Do you smoke or drink alcohol? or by any chance do you use any illicit drugs?
- What do you do for living?
- Any social support or mobility aids involved in the past?

Forensic History - Any current or past problem with the police?

Judgment - What would you do if you smell smoke in your house?

Insight - Do you think you have a problem and need medical help?
Would you like to add anything?

Dr Marwan Kabir

Concern and Expectations - What is your concern and What do you expect from us to do?

After history taking present to the examiner the findings

I would like to present my finding
I have a patient nae Mr./Mrs. ..... aged ..... have features of .... (depression/ mania/ psychosis) ...
His -
1. Appearance is - clothing / personal hygiene and any signs of neglect
2. Behavior - Posture - sitting, poor eye contact / calm/ very happy / sacred
3. Speech - Rate, tone volume, quality of speech, pressure of speech, flight of ideas
4. Mood - persistent sadness, feeling bored (low mood)
5. Thought disorder - thought blocking, withdrawal, insertion or broadcasting
6. Hallucinations / delusions - No auditory, visual, olfactory or somatic
7. Cognition - Concentration, perception of current / future situations and perception of self
8. Judgment and insight - aware of the problem (intact insight)

Management
Patient needs psychiatric assessment under mental health team
Patient needs counselling regarding drug and or alcohol abuse (if illicit drug)
We need to rule out organic cause by examination, blood test

If ask to do mental capacity – Present the case to the actor and check his understanding

---

SAD PERSON score

For depression asses SAD PERSONS Score to assess the severity
S - Sex - (Male) - 1
A- Age - < 19 yrs. or > 45 yrs. - 1
D- **Depression** - 2
P- Previous suicidal attempts or psychiatric care - 1
E- Excessive alcohol or drug abuse - 1
R- Rational thinking loss - 2
S- Separated/ divorced- 1
O- Organized or series of events - 2
N- No social support - 1
S- Stated future intend - 2

Score
0 - 5 = May be safe to discharge (depending on the circumstance
6 - 8 = Probably requires psychiatric consultations - Can discharge if there is no future intention of self-harm and have mental capacity
> 8 = Probably requires hospital admission

Management of score of > 8 with depression
Ask what is your decision

- I will stay
- I will go home
    - If want to go home
        - Why you want to home?
    - If no response
        - Do you have any one to care about? We Can arrange for that.

Dr Nawan Kabir

- If no any reason or If have reason for go home
    - Now you want to harm your self and others, so I advise you for admission and it will be involuntary admission
- If he insists on going home
    - For your safety and public safety, we will have to admit you and this will be compulsory admission.

Assessment of Cognition

This history taking involves patients who presents with confusion and where the task is about assessment of cognition

The main component is mini mental state examination.
Introduction is same as above and start from cognition questions

Mini mental state Examination

1. Orientation (10)
    - Time - Year, season, Month, Day and time (5)
    - Place - Country, county, city, hospital, ward (5)
2. Registration (3)
    - Repeat the name of 3 simple object - car, book, pencil
3. Attention (5)
    - Subtract increments of 7 from 100
4. Recall (3)
    - Remembering the same 3 objects for earlier
5. Language (3)
    - Naming two everyday objects
6. Language (2)
    - Repeat 'No ifs and no buts'
7. Language (3)
    - Follow 3 stage command - 'Take this paper, Fold in to half, and keep it in the table'
8. Language - (1)
    - Reading and following instruction - 'Close your eyes'
9. Language (1)
    - Writing and sentence (most contain subject and verb - poor spelling does loose mark)
    - Ask to copy and drawing (2 intersecting pentagon)

Then ask one questions from other parameters

Depression - How do you feel today?
Psychosis - Do you hear, feel or see things which they not around?
Self-harm - Have you ever tried to harm yourself or anybody else before?

Then ask about past medical, social, family history, judgement, insight

Then present as above and tell the diagnosis as confused secondary to sepsis/ old age/ drug abuse etc.

Dr Marwan Kabir

Substance Abuse

Go with introduction and if the scenario is with a symptom (e.g.: Heart raising, excessive vomiting with multiple admission to hospital) aske with ODIPPARA and go with the flow and ask about the substance abuse.
If asked to talk about 'Legal High' - explain the task and go for the following direct questions and end up with mental examination question

Symptoms of cannabinoid Toxicity

Major features

- Sever cyclical nausea and vomiting
- Resolution with cannabis cessation
- Relief of symptoms with hot shower or baths
- Abdominal pain, epigastric or periumbilical pain
- Weekly use of marijuana
- Weight loss

Supportive features

- Age < 50
- Weight loss of > 5 kg
- Morning predominance of symptoms
- Normal bowel habits
- Negative laboratory, radiographic and endoscopic test results

Drug abuse Screening test (DAST)

1. Have you used drugs other than those required for medical reasoning?
2. Which recreational drug have you used in the past year - methamphetamines, cocaine, heroine, ecstasy or anything else?
3. How often have you used these drugs? monthly/ weekly or daily? and where?
4. Do you abuse (use) more than one drug at a time? or with alcohol?
5. Why do you use them?
6. Are you unable to stop using drugs when you want to?
7. Have you ever had blackouts or flashbacks as a result of drug use?
8. Do you ever feel bad or guilty about your drug use?
9. Does your spouse (or parents) ever complain about your involvement with drugs?
10. Have you neglected your family because of your use of drugs?
11. Have you engaged in illegal activities in order to obtain drugs?
12. Do you feel withdrawal symptoms like feel sick when you stop taking drugs?
13. Have you had any medical problems as a result of your drug use? like memory loss, hepatitis, convulsions, bleeding?
14. Do you inject drugs?
15. Have you ever been in treatment for drug problem?

Ask only questions mentioned in the legal high part. If can remember, can ask all questions.

Dr Farhan Kabir

Alcohol Screening

1. Introduction
   I want to go home.
   This will only take few minutes and this will be in a private room with a nurse attending with us and everything you tell me will be confidential. Is that ok for you?
2. **CAGE** or **PAT** or **AUDIT C** questions
3. Depression
4. Cognition
5. Psychosis
6. Self-harm
7. General approach

CAGE questionnaire

1. **C –** Did you try to Cut down your drinking?
2. **A -** Do you get Angry if people mention your drinking?
3. **G -** Do you ever feel Guilty about the amount you drink?
4. **E –** Do you drink early morning? (an Eye opener)

The Paddington Alcohol Test (PAT)

1. How often do you drink alcohol? monthly/ weekly/ or daily?
2. How many units? (In units)
3. Do you feel your attendance to ED is related to alcohol?

Management

- According to your data, I can see you are dependent on alcohol. Would you like me to stop or decrease the pattern?
- If no:
  - I think you will agree with me, this will affect your organs, your social life, relationship. What do you think?
- If yes:
  - Do you like to help me to cut down your alcohol intake?
  - So, I will refer you to the substance abuse specialist, they will not force you, but you will help you to cut down your alcohol intake

Dr Marwan Kabir

Psychosis

Introduction

How can I help you?

I can hear voices
I am so sorry to hear that. We are hear to help you, we are here to support you.

Can you tell me more about these voices?

Are they animal voices or human voices?

What are they telling you?

Other questions of psychosis

- Do you see them?
- Are you touching them or can they touch you?
- They ask you to harm yourself and kill yourself. Did you try to harm yourself?
- If you go home will you try to harm yourself?

Complete the questions with other routine questions.

Paracetamol overdose assessing safe to discharge

(Investigations are all normal except paracetamol levels)

Introduction

Good morning, I am Dr.Marwan, ED registrar, May I know your name and age please.?
Nice to meet you, I have bee asked to take some data from you is that ok for you?
How can I help you today?
I want to go home
I appreciate your concern. I am here to discuss your presentation today
I want to go home
I will chat wit you for few minutes. After that we will decide of going home. Is that ok with you?

Self-harm question

- I have been told that you have taken a large amount of paracetamol. Can you tell me more about that?
- Can you tell me why?
- I wanted to kill myself. /I took it as I was angry with my husband.
- Where did you find paracetamol?
- Did you take paracetamol with alcohol or with any illicit drug?
- Have you tried to self-harm before?
- Have you planed this event is before like writing letter?
- If you go home will you try to do the same?

Ask about Depression, Cognition, Psychosis questions
Then past medical, surgical, social history

Management

Dr Marwan Kabir

- If low risk
    - Thank you for your data. From your data, you are at low risk of self-harm and you will not harm yourself if you go home. So, you are free from psychiatric aspect and mental health issue. But I have concern regarding your medical safety.
    - I checked your notes and all investigations normal except paracetamol. This is an indication for antidote which is called N-acetyl cysteine which is injected to your blood to protect your liver. What do you think?
    - I want to go home
    - Can you tell me why you want to go home?
    - Any thing at home? Any vulnerable pets, adults to be looked after? So we can support you
    - I am afraid of the injection
    - I appreciate your concern. I am the most senior here, I will spray to numb the area, you will not feel the pain, or we can give alternative as oral medication.

- If high risk
    - According to your data, you are at high risk of harming yourself. Because of that you need admission.
    - Regarding your medical health, I checked your notes which says that you have higher levels of PCM in your body. So, this needs an antidote called N-acetyl cysteine which given as injection. What do you think about it?
        - Why you want to home?
    - If no response
        - Do you have any one to care about? We Can arrange for that.
    - If no any reason or If have reason for go home
        - Now you want to harm yourself and others, so I advise you for admission and it will be involuntary admission
    - If he insists on going home
        - For your safety and public safety, we will have to admit you and this will be compulsory admission.

Assessing legal high

Introduction

- How can I help you?
  I feel like my heart is pumping
- Would you like me to give medicine to make you comfortable?
- Are you comfortable after the medication?
- Can you tell me about this palpitation today?

Substance abuse

- What is the type of substance? Is it injection or my mouth?
- What is the name of the drug?
- How many tablets/ how much?
- How often? Is it daily, weekly or monthly?
- Did you take them with alcohol?

Dr Mahwish Kabir

- Did you take them with another drug?
- Why you take these drugs? For fun or for social?

Depression

- How do you feel today?

Cognition

- What is the day today?
- Do you remember who I am?

Psychosis

- Do you hear or feel or see which no one can hear?
- Does someone withdraw or insert ideas?

Self-harm

- Do you have previous or current attempts to self-harm? Will try to harm your-self?

General approach of history taking.

Management plan

- Advice only
    - Did try to stop or decrease the amount of drug?
    - If yes
        - Would you like me to help you to decrease the amount?
        - I will arrange counselling for you with drug abusing specialist. He will not force you. They will just help you to decrease or stop the method. What do you think?

Dr Mehwan Kabir

Adult resuscitation

General approach

1. Introduction

Hallo, I'm Dr. Marwan, most senior doctor today. May I know your name and grade please?

Ok. I need another nurse to assist with the patient, Are both of you ALS provider?

Are you happy with managing airway? Can you prepare for airway equipment?

Are you happy with circulation? Can you prepare all the equipment?

We are going to receive a ..... old Patient with ..... Please call the adult resuscitation team.

We all will wash hands and wear our PPE.

Patient arrived

2. Hand over from the ambulance crew

Any endorsement from the ambulance crew?

Ok. Thank you.

3. Assessment

Is the Patient conscious? - Yes/ No

- If no - Are there signs of life/ look, listen, feel - Is there pulse?

A - Airway

- Is the patient talking?
    - If no - Is the airway patent?
    - If Yes - Please apply non rebreather mask and give high flow O2 15 L/min
    - If no - Can you please clear the airway? Is it patent?
        - If no - Can you please apply oropharyngeal airway? Is it patent?
        - Is the patient tolerating oropharyngeal airway?
            - If yes - (means GCS - < 8) Please call the anesthetist team, this patient may need intubation at any time.
            - Apply bag valve mask ventilation
            - If the anesthetist team takes time to come - I will intubate the patient. Please bring laryngoscope and ETT. I can see the vallecula, vocal cords, insert ETT between 2 vocal cords. Attach ETT to 100% with ambu bag, is there chest rise bilateral? What about ETCO2?

Dr Marwan Kabir

- Yes, there is chest rise and ETCO2 is normal

Now I will expose the chest and connect to all the monitors

B - Breathing

- What about the saturation?
- What about the respiratory rate?
- What about the trachea? Is it central?
- What about the neck veins? Is it engorged?
- What about the inspection of the chest? Is the expansion equal?
- What about the palpation?
- What about the percussion?
- What about auscultation? Heart sounds?

Do intervention there is any abnormality after the assessment.

C - Circulation

- What about blood pressure?
- What about CRFT?
- What about peripheral pulses?
- What about the heart rate and ECG?

D - Disability

- Any sign of lateralization?
- What is the GCS?
- Are the pupils equally reactive?
- What about the blood sugar?

E - Exposure

- What is the temperature?
- Is there any abnormality seen in the long bones and skin?

4. Hand over

I would like to hand over the patient to .....

They will be her in 15 min

5. Reassessment (2ndry survey)

- Is the airway patent
- What is the O2 saturation?
- What is the blood pressure?

Dr Marwan Kabir

Cases - Bradycardia

1. Introduction

2. Handing over from ambulance crew

3. Assessment

Airway, Breathing - as above and address the abnormality on the site

Circulation - When coming to heart rate - look for ECG - Bradycardia < 60bpm

Take 2 IV cannula and draw blood for biochemistry, hematology, blood gases, blood culture and for toxicology.

Please start normal saline 500ml over 15min and give atropine 500 mcg IV. Please check the response every 5 min and if the bradycardia persists, we can give maximum up to 3 mg.

Life threatening conditions - Shock, Syncope, Myocardial infarction, Heart failure

Cases most likely to go into asystole - Recent asystole, Mobitz type II AV block, Complete heart block with broad QRS, Ventricular pause > 3s

If these features there –

This patient has..... so this pt may need transcutaneous pacing. Please call the cardiologist and attach pads anterolateral and prepare for pacing.

Take 2 Iv access and take blood for hematology, blood biochemistry, blood gases and toxicology screening.

Please start atropine 0.5mg IV. We can repeat the atropine 0.5mg very 5 min up to maximum 3mg. While the Atropine going on, I will go on to Disability and Exposure.

Asses E, D

After that I want to hand over the patient to the cardiologist.

Cardiologist will reach here in 15 min.

So, I will **Reassess** the patient.

What about the airway patent? Spo2?, Blood pressure?

How the ECG after 3 mg of atropine.

Still the same

So, patient not responding to 1st line of atropine. I would like to start isoprenaline 5mcg over 5 min.

What about the heart rate?

Dr Marwan Kabir

Still the same

So, this pt. needs pacing. As patient is conscious, I would like to sedate the patient with midazolam 0.1mg/kg (or propofol 1mg/kg) IV.

We will start on 70 ppm with 30 MA Is there electrical capture. I will increase by 10 MA and look for electrical capture. 40 MA - no capture, 50 MA - no capture, 60 MA - yes, we have electrical capture. we will see whether there is any mechanical capture also.

Guys we have achieved pacing rhythm with electrical capture. We will assess mechanical capture with ABCDE

What about the Airway? Spo2? BP? GCS?

Cardiology team arrived -

I would like to handover you this ..... old man came with history of syncope today and on admission he was found to be having unstable brady arrythmia with ((complete heart block/ type 2 AV block (mobits type 2) / ventricular pause > 3 s)) and we gave him atropine up to 3mg and as there was no response, we have done transcutaneous pacing with electrical capture in 60 MA. This patient needs CCU admission and close observation and needs transvenous pacing as a permanent solution.

Thank you.

Calcium channel blocker –

- Affects the brain and heart – cause CNS depression and bradyarrhythmia.
- Diltiazem toxicity can cause bradycardia
- Call ICU team and give calcium chloride and glucagon if not responding to atropine.
- Can add insulin and dextrose.
- Call cardiology, ICU team and Toxibase
- Attach the pacing in the 1st assessment.

Dr Nawan Kabir

Case - Tachyarrhythmia

1. Introduction

2. Assessment

Circulation - look at the HR an ECG - determine whether narrow or broad complex and whether irregular or regular complex

If narrow complex regular - SVT –

- If Patient stable
    - Vagal maneuvers. Is there a response? - If no - adenosin 6mg rapid IV bolus - no response - 12mg IV and if unsuccessful - 18mg bolus (up to 36mg)
    - If still ineffective verapamil 5mg IV over 10min or betablockers (metoprolol)

If irregular narrow complex - Atrial fibrillation –

- Give verapamil 5mg or Betablockers
- If signs of heart failure - digoxin / amiodarone

If Regular broad complex tachycardia

- If stable amiodarone 300mg over 10min (If TCA toxicity - give lidocaine 1.5mg/kg)
- If not responding give synchronized shock with sedation up to 3 shocks.
- If patient rhythm change with amiodarone can give amiodarone 900mg over 24 hrs.

If polymorphic VT (Torsade's de pointes)

- Give magnesium 2g over 10 min

If in all cases –

Unstable (Shock, Syncope, MI, sever heart failure) –

Dr Imran Kabir

- For broad complex – synchronized DC shock 70 J, 100 J, 120 J up to 3 attempts
- For narrow complex - synchronized DC shock 120 J then 140 J and then 160 J up to 3 attempts
- If Unsuccessful - give amiodarone 300mcg IV over 10 - 20 min. Can repeat synchronized DC shock if needed.

Case with Cardiac arrest

While assessing patent going in to unresponsiveness

Please look, listen, feel - is there a pulse?

No Pulse.

Guys... patient gone in to cardiac arrest - immediately resume CPR. 30 compression to the chest. Push fast, push heard and allow the chest to recoil. (or give high quality CPR.) After 30 compressions give 2 breaths. continue for 2 min.

2 min passed

Stop CPR. switch role, Asses rhythm

If pt. with shockable rhythm - VF / pulseless VT

Ok patient is in shockable rhythm.

Please resume CPR until I charge the defibrillator

I put in to desynchronized mode up to 160 J and the defibrillator charged. I'm going to keep the pad in the patient chest. Everybody clear, O2 away. I'm going to deliver shock. Shock delivered. resume CPR.

2 min passed

Stop CPR, switch roles, and Asses rhythm

If shockable rhythm again - can give maximum 3 shocks and then give adrenalin and amiodarone 300mg bolus

While CPR 2nd cycle - assess the reversible causes

4 'H' and 4 'T'

Hypoxia - patient is on high flow O2 and his spo2 maintaining

Dr Marwan Kabir

Hypovolemia - will give 500ml normal saline

Hypo/ hyperkaliemia, Hypo/ hypercalcemia - any results of ABG and potassium values?

Hypothermia - What is the temperature?

If normal give the adrenalin 1mg IV 1: 10,0000

Tension pneumothorax - There is no hx of trauma

Tamponade - I would like to do a bedside cardiac USS

Toxins - Any bottles or any medications in this pockets?

- For TCA toxicity - will have tachycardia - stable or unstable and shockable / non shockable - Give IV NaHCO3 8.3% 50 mmmol/l and Intra lipids
- For CCB toxicity - will have bradycardia (unstable) - Give calcium gluconate 10% 10ml over 10 min / Calcium chloride
- Lidocaine toxicity - will have tachycardia - Give intralipid 20% 1.5ml/kg.
- Opiate toxicity -
    - Will have low respiratory rate, and low SPO2 - give bag valve ventilation and needs intubation (call for anesthetist) after bag valve ask or chest rise and spo2
    - ECG will have bradycardia - manage as bradycardia algorithms
    - In reversible causes when found there is needle marks and having bottle containing opiates - give naloxone 400 mcg and we can start an infusion

Thrombosis - As from the history of this patient most likely cause is acute coronary syndrome/ pulmonary embolism

For pulmonary embolism - ECG changes -

- Tachycardia >120bpm
- Right axis deviation
- Incomplete RBBB
- Simultaneous T wave inversion in inferior and anteroseptal leads
- S1 Q3 T3 pattern

If patient having non shockable rhythm - Pulseless electrical activity/ asystole

Continue CPR and prepare adrenalin 1mg 1 in 10,000 and give the adrenalin every 3 - 5 min alternative cycles.

Asses the reversible causes - 4 H and 4 T

After assessing if there is electrical activity - Assess the pulse

If pulse is present

Dr Manvir Kaur

Well done guys. we have achieved ROSC.

I would like reassess the patient

A - Is the airway patent?

B - What is the Spo2?

C - what is the blood pressure?

D - What is the GCS? Is the pupils equal? Is there any lateralization?

If GCS less than 8 - this patient needs intubation. please call the anesthetist team.

ICU team will be here is 10 min

Until then please resume bag valve mask ventilation with airway adjunct.

You are compatible to do intubation

I need the laryngoscope - I will out the tongue out and see the vocal cords. I will insert the tube through the vocal cords and inflate the cuff. hen asses the capnography and assess the both lung air entry

Capnography normal and the B/L air entry equal.

If unequal pupils - I would like to call the neurosurgery team and also, I would like to do a CT head for this patient.

E - I will expose the whole body - Is there any rashes in the skin? How about the temperature?

I would like to hand over the patient

Hallo, I am Dr Marwan, ED registrar, Are you ..... I would like to hand over you this patient aged..... came with hx of ..... and he was found to be having low BP and on arrival we found ..... then we resuscitated and he finally achieved ROSC. I recommend you that this patient needs.....

Patient coming with Hematemesis/ Massive bleeding without or with Trauma

1. Introduction

Tell while preparing - Activate massive transfusion protocol and prepare for O negative blood.

2. Assessment

Here the airway and circulation are compromised

In airway - ask patency - if not patent - suck out secretion - still not - insert nasopharyngeal airway still not patent due to vomiting - need intubation - If they say that ICU team will come after some time -

I will intubate the patient.

I take laryngoscope and push the tongue out and visualize the vocal cords and insert the tube between the vocal cords and assess with capnography and B/L air entry.

In assessment

1. Source of bleeding is available
2. RR > 30 bpm
3. SBP < 90 mmHg
4. HR > 110 bpm

Activate massive transfusion protocol. Call for gastroenterology team, prepare the operation theater.

Take two wide bore cannulas in the antecubital fossa and collect blood for grouping and cross matching and biochemistry, blood gases, and toxicity.

- Don't give fluid in 1st C and give blood
    1. Four RBC packs cross matched.
    2. If no cross matched blood not available – give O negative blood 2 packs for women and O positive blood for male.
    3. If no O blood – give fluids 250ml only (can repeat until blood available)
    4. Terlipressin 2mg stat. (do not give tranexamic acid)
    5. Give antibiotics ceftriaxone 2g IV (can give in 2ndry also)

How to know the BP is normal or not.

Heart rate should be less than the SBP (patient having compensated BP and can collapse within 5 min.)

While the blood is going on - I will assess D and E

Exposure – Look for any features of Chronic alcohol use, spider neavi.

Then secondary survey

A, B, C - asses blood pressure - if low - asses for blood report

Give primary pack

Dr Nawan Kabir

- 4 RBC
- 4 FFP
- 1 PLT

3rd assessment

If no improvement in BP give 2ndry pack

- 4 RBC
- 4 FFP
- 1 PLT
- 2 cryoprecipitate

4th assessment

If no improve with BP – try to control the bleeding
If no external bleeding, the bleeding may be internal and blood is in the stomach.

- Patient still having low bp and there is internal bleeding. Patient needs balloon tamponade. Please call the anesthetist. Call gastroenterologist and prepare for balloon tamponade.
- Intubate the patient
- Check for success of the tube – B/L air entry equal?
- Go for balloon tamponade

If blood results available

- If Hb < 8 mg/dl - Give 4 Units of RBC
- If PLT < 50,000 - give PLT - 1 units
- If INR > 1.5 - Give 4 Units of FFP
- If Fibrinogen < 2 - Give cryoprecipitate 2 pools

Pregnant mother resuscitation

Introduction

Ask to call midwife and adult resuscitation team and obs and gyne team and neonatal resuscitation team

Prepare for Cardiff wedge or 30 degree slanting of the bed

In assessment -

Circulation - ask for FHS from mid wife and any bleeding from vaginal orifice?

If BP low - ask for O negative blood and give tranexamic acid and consider anti D administration after checking her blood group

Dr Marwan Kabir

Follow massive transfusion protocol

After achieving ROSC

Excellent guys. we have achieved ROSC.

A - Is the airway patent?

B - O2 saturation?

C - BP? 12 lead ECG? Chest x-ray?

D - blood sugar? GCS? - If less than 8 - needs intubation, signs of lateralization? Pupils?

E - Temperature? (expose the body) any rashes?

Hand over the patient to eleven specialty (ISBAR)

Hai, I'm Dr Marwan, ED registrar, I have .... yrs. old patient presented with cardiac arrest with shockable rhythm/ massive blood loss. despite management we have made the patient stable and the most likely cause of arrest is/ bleeding ..... I recommend for you to admission for CCU and PCI or admission for ICU and need endoscopy for control bleeding.

Cardiac arrest with Hypothermia

1. Introduction

2. Handover

3. Assessment

Hallo, I'm Dr. Marwan. How can I help you?
Patient not responding
Please Look, Listen, Feel - Is there a pulse?
No pulse
Please start CPR - push fast push hard give 30 compressions and 2 breaths after that with bag valve mask.
I will expose the chest and connect all monitors
Get 2 IV access and take blood for hematology, biochemistry, toxicology and blood gases.
Start IV normal saline 500ml over 30min. What about the rhythm?
Normal sinus rhythm - Is there a pulse? - No pulse
This is pulseless electrical activity. Please resume CPR and prepare adrenalin 1mg 1:10,000. I would like to assess the 4 H and 4 T. What is the temperature?
It is 27

Dr Marwan Kabir

Ok Patient is hypothermic and it is the possible cause for the cardiac arrest. Please withhold adrenalin and I would like to do active and passive rewarming of the patient.

1. Please dry the patient cover with thick blanket
2. Put air conditioner in to warm temperature
3. Give humidified warm O2
4. Give warm normal saline 500ml

Is 2 min passed? yes

Stop, Switch, asses rhythm

Normal sinus rhythm. What about the pulse? No pulse

Resume CPR and what about the temperature? 28

Please continue rewarming the patient

2min passed

Stop, Switch, Analyze

Monitor showing VF

Of. It's a shockable rhythm

Please continue CPR until I charge the defibrillator

I will put the defibrillator in to desynchronized mode and charge to 150 J and stop CPR, all clear, O2 away pads in the chest I am clear - shock delivered - resume CPR for 2 min

2 min passed

Stop, switch, asses rhythm

Its again VF

Ok I would like to give the 2nd shock and continue CPR until I charge the defibrillator

I will charge the defibrillator to 200 J - All clear - O2 Away - I will keep the pads in the chest - I am clear - shock delivered - resume CPR for 2 min

2 min passed

Stop, switch, asses rhythm

It is again VF

Dr Marwan Kabir

Now I will give the 3rd shock and please continue CPR until I charge the defibrillator

I will charge the defibrillator to 250 J - All clear - O2 away - I will keep the pads in the chest - I am clear - Shock delivered - Please resume CPR for another 2 min

2 min passed

Stop, switch, asses rhythm

Again VF

Please resume CPR

can you tell me the temperature - 29?

Ok will withhold further shock and adrenalin and amiodarone and please continue CPR and active and passive rewarming the patient.

2 min passed

Stop, switch, analyses the rhythm

Sinus Rhythm - Is there a pulse? yes there is a pulse

Excellent guys. We have achieved ROSC

I would like to reassess the patient

A - Is the airway patent?

B - How about the Spo2?

C - How about the Blood presser?

D - What is the GCS? 8, How about the Pupils? reactive. Any signs of lateralization? No

This patient needs intubation. please call the anesthetist team. Until then please do bag valve mask ventilation

E - I will expose the patient. Any rashes? No. How about the temperature? 32

Please continue active rewarming and I would like to put a catheter to the patient, and would like to irrigate with warm saline.

I would like to hand over this patient to ICU team

ICU team arrived

Hallo, I am Dr. Fathima Safana, ED registrar. Are you ICU registrar?

Dr Marwan Kabir

This.... aged man brought to the ED with a history of collapse at the bathroom, and when he arrived, he was on cardiac arrest. We gave CPR 5 cycle and with 3 cycle of shocks as patent had VF. Patient was found to be having temperature of 27 and we withhold Iv drugs and did active and passive rewarming. He resumed ROSC and his GCS is 8. He needs intubation and now his temperature is 32 and we need to actively rewarm the patient and needs invasive monitoring for this patient. Thank you

---

Patient with shock

- **Introduction**
- **Hand over**
- **Assessment**

A - will be normal

Shock can be 2 types

- Cardiogenic shock – distended neck vain, low SPO2, hear murmurs, B/L basal crept
- Septic shock – Neck vain normal, low SPO2, lung crepitation

Intervention

- After breathing assessment
    - Cardiogenic shock
        - Patient having cardiac failure. Please call the cardiologist and the ICU team.
    - Septic shock
        - Patient having respiratory infection. Please call the ICU team.
- After circulation
    - Cardiogenic shock
        - Patient having cardiogenic shock. Has the ICU team arrived? Please take 2 IV access and take blood for……. Please start IV normal saline 250ml over 10 min and can give inotropes like dopamine/ dobutamine/ noradrenaline
    - Septic shock
        - Patient having septic shock due to chest infection. Has the ICU team arrived? Please take 2 IV access and take blood for ----------. Please start IV normal saline 500ml normal saline over 10min up to maximum 3L.

Then 2ndry assessment

- Ask for ABG all component
    - If PO2 and PCO2 normal even the SPO2 is low – no need of intubation at the moment and the spo2 will improve with time with high flow O2.
    - If PCO2 and PO2 low – Patient is in respiratory failure and need intubation.

Dr Marwan Kabir

- If lactate > 2
    - Activate the sepsis 6
        - Patient is on high flow O2
        - Patient is on Iv fluid
        - Please give ceftriaxone 2g IV
        - We have taken blood for blood gases and blood culture
        - Please insert urinary catheter to monitor the urine put.

ECG, chest X-ray will be in 2ndry assessment if needed.

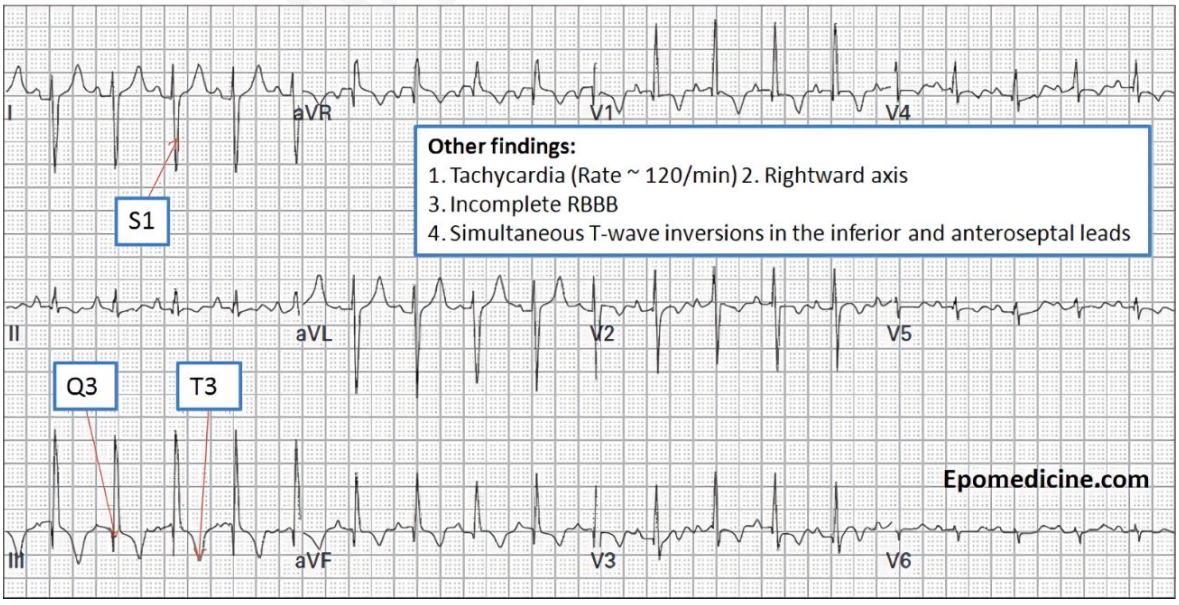
Pulmonary embolism

Suspect massive pulmonary embolism

1. Hypotension
2. Troponin is positive
3. By echo patient have right sided heart failure

If patient is stable (even with ECG findings) – do not give any medication in 1st or 2nd assessment. On 2nd assessment can tell if the patient stable – I will move this patient for CTPA if his renal functions are normal.

If in 1st assessment if you find Hypotension with ECG findings



Marwan Kabir

Patient is ECG showing features of pulmonary embolism. And patient having hypotension.

So, patient is having massive pulmonary embolism. Call pulmonologist/ cardiologist. Take blood for ----------including troponin and give IV normal saline. Please give alteplase 50mg.

If goes in to cardiac arrest – I would like consider 4H and 4T and the cause is pulmonary embolism. Please give IV 50mg bolus. We should consider prolong CPR up to 90min as we have given alteplase in the peri-arrest period.

If there is cardiac arrest with pulmonary embolism give alteplase 50mg and after 15 min still no ROSC give the other 50mg over 2hrs.

Anaphylaxis

1st assessment

- Give adrenalin 5mg in the anterolateral aspect of the thigh IM before ABCDE. Don't give adrenalin again in the same assessment.

2nd assessment

- Ask about the airway, SPO2, any wheezes, BP, GCS
- Check the response of adrenalin and give the 2nd dose in the other thigh.

3rd assessment

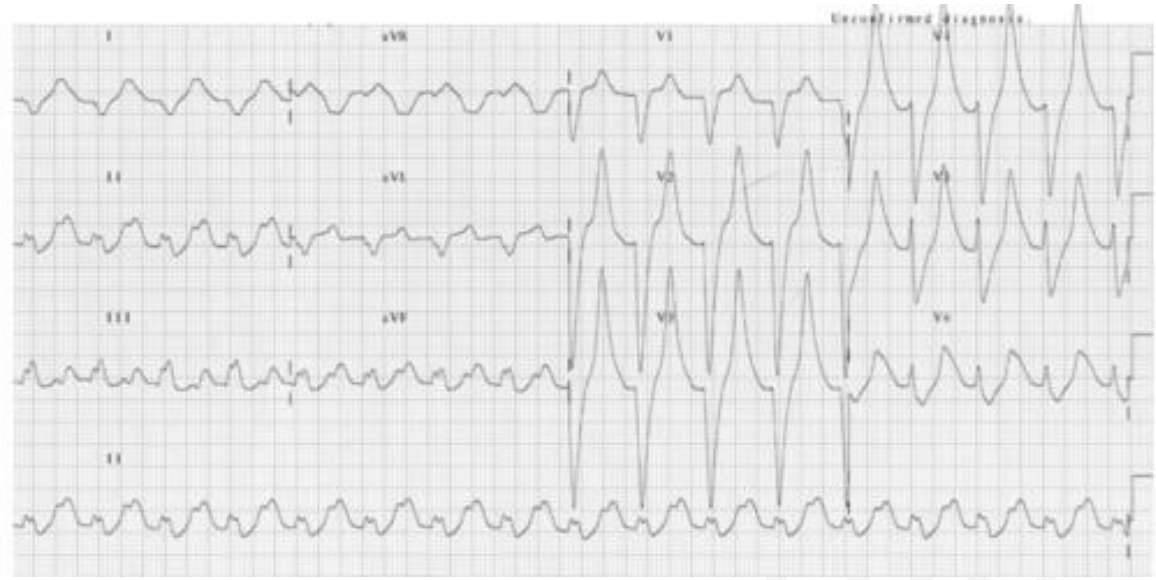
- Patient is in refractory anaphylaxis. Please call the anesthetist and prepare adrenalin 1mg over 100ml normal saline over 1 hr infusion.

4th assessment

- Nebulization-
    - For airway – adrenalin nebulization
    - For wheezes – salbutamol nebulization

Hyperkalemia

Dr Marwan Kabir



Indications to start anti-hyperkalemic measures

- Serum potassium > 6.5 mmol/l
- Arrythmia in ECG
    - Tall tented T wave
    - Wide QRS
    - AV block
- Cardiac arrest

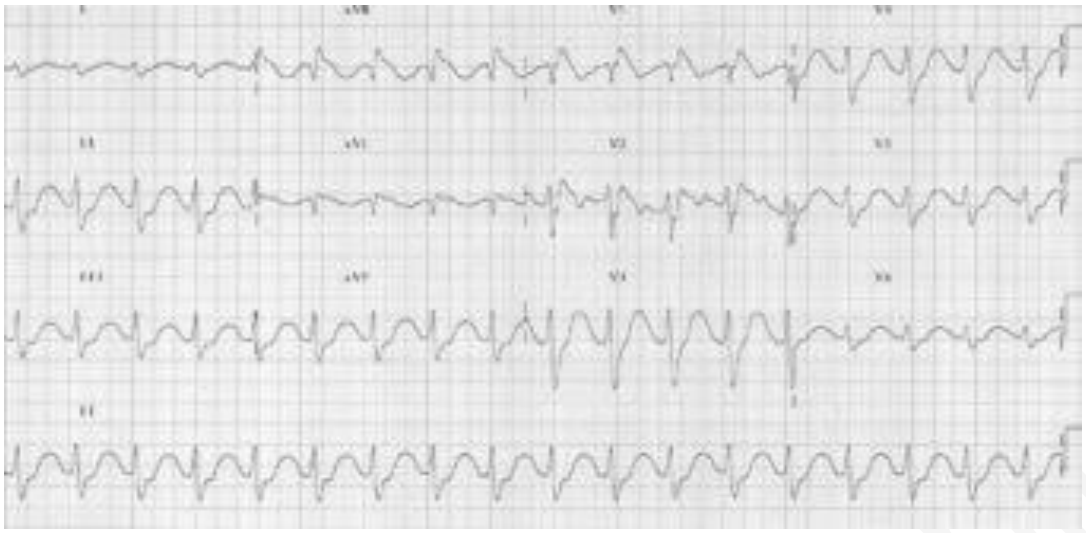
Management

- Calcium chloride - 10% 10 ml over 10min.
- Insulin-dextrose – 10units in 50% dextrose 50ml over 30min
- HCO3 – 50mEq IV over 5min
- Nebulization with salbutamol only when patient is conscious/ alive

---

TCA toxicity

Dr Marwan Kaf



If patient is stable arrythmia

- Fluids
- HCO3
- Mgso4
- Intralipid if patient not responding

How does TCA affects the patient?

- Affects brain and heart high or low
- Can cause CNS excitation or depression
- It can cause brady or tachyarrhythmia

If patient having unstable arrythmia

- Give above medications +
- Synchronized DC shock 250 J up to 3 time
- If failed – do not give amiodarone

If patient getting seizures

- Give benzodiazepine and do not give phenytoin

Dr Marwan Kaur

Pediatric Resuscitation

GENERAL APPROACH

1. Introduction

Good morning, I am Dr.Marwan, ED registrar, I am the team leader today. May I know your name and level please. Thank you

Are you APLS provider?

I need another APLS certified nurse. Thank you

Are you happy to manage airway? Can you prepare all airway equipment?

And you are you happy to manage circulations? Please prepare all circulation equipment?

We are going to receive..... old child with....

So please call pediatric resuscitation team. I will calculate the WETFLAG.

- W - Weight - (age + 4) x 2 = Kg
- E - Energy - 4 joules/Kg
- T - Tube - (age/4) + 4 = Diameter in mm, Length = (age/2 + 12) in cm
- F - Fluid - 10ml/kg bolus
- L - Lorazepam - 0.1mg/kg
- A - Adrenaline - 10mcg/kg or 0.1ml/kg in 1:10,000 solution
- G - Glucose - 2ml/kg 10% dextrose solution

Please wash your hands and wear PPE

Has the patient arrived?

2. Hand over

Any endorsement from the ambulance crew?

Hallo... I…. I am the mother. What's happening to my child.

Hallo mam. I am Dr. Marwan. most senior here. Don't worry. your child is in safe hands. We will assess and give necessary treatment. Please be seated in the waiting area. I will assist a nurse with you to give necessary information regarding your child.

3. Assessment

What is the AVPU score of the baby? (A - Alert, V - Verbal, P - Pain, U - Unresponsive)

Dr Marwan Kabir

If Unresponsive - Ask for Look, Listen Feel. Any signs of life?

- If no signs of life – give 5 rescue breaths. Ask for any signs of life?
- If no signs of life – call pediatric resuscitation team and give high quality CPR
- Consider 4H and 4T and most probable cause is hypoxia or hypovolemia
- Please prepare adrenalin 10mcg/kg give every 2 min
- After 2 min reassess

If signs of life present or any other like A or V or P go for ABCDE

A – Airway

Is the airway patent?

If patent - Give high flow O2 via non rebreather mask. I am happy with the airway move to breathing

B – Breathing

Please expose the chest and connect all monitors

- What about the Spo2?
    - If not reading
        - Child is in cardiac arrest or alive
            - Ask for look listen and feel. Any signs of life?
- What about RR? What about the trachea? What about the neck veins?
- On inspection of the chest any findings? Palpation? Percussion? Auscultation? Heart sounds

I am Happy with the breathing. I will move to circulation

C – Circulation

What about the BP?

- If BP unrecordable
    - Look listen and feel. Any signs of life?
- CRFT? Peripheral pulses? HR/ECG?

SBP ranges

- 1 month - > 50mmHg
- 1 yr. - > 70mmHg
- 5 yr. - > 75mmHg
- 10 yrs. - > 80mmHg

So, any age SBP > 80mmHg is normal and < 50mmHg is low

Dr Marwan Kabir

Decompensated/ Unstable patient -

- Reduced level of consciousness (APGAR score – not alert)
- Prolonged CRFT
- Reduced SBP

If patient found to be compensated/ stable - only observation needed

Heart rate

- Bradycardia
    - Less than 1 year - < 80bpm
    - More than 1 year - < 60bpm
- Tachycardia - narrow complex
    - Infant - > 220bpm
    - Child - > 180bpm
- Tachycardia - wide complex - no need to check the PR

Please insert " wide bore cannula and extract blood for biochemistry, hematology, blood gases, and toxicology screening.

Please start IV normal saline 10 ml/kg according to WETFLAG

I am happy with circulation, now I will move to disability

D – Disability

What is the AVPU score now?

- If patient is Unresponsive – ask about signs of life.
    - If signs of life present
        - Patient is alive – but unstable
    - If no signs of life
        - Child is in cardiac arrest and give CPR 15:2
- Any signs of lateralization? What about the pupils? What is the RBS?

E - Exposure

What about the body and any abnormality seen? What is the temperature?

4. Hand over to relevant specialty

I would like to hand over this patient to pediatric ICU team/ Pediatric cardiology team etc.

5. Reassessment

Until then I would like to reassess this child

What about the airway? Spo2? BP? AVPU? Temperature?

Dr Marwan Kabir

Features of pediatric instability

1. APGAR score – not alert
2. CRT < 2s
3. SBP is low

Bradycardia

Assessment

In 1st assessment - Circulation

HR and found to be < 60bpm

- This child is having unstable or stable bradycardia and please call the pediatric cardiologist
- Optimize oxygenation
    - If RR is low (10 -14bpm) and BP normal, child is unconscious and PR is < 60bpm
        - Please optimize Oxygenation by high flow oxygen through bag valve ventilation 1 ventilation every 3 s.
    - If RR is normal and PR < 60bpm
        - Please optimize oxygenation vial non rebreather valve mask.

In 2nd assessment in circulation

- If patient conscious and PR is < 60 bpm
    - Optimize oxygenation
- If unconscious and HR is 60 bpm or more
    - Optimize oxygenation with non-rebreather mask or bag valve mask 1 ventilation every 3 sec.
- If patient unconscious and PR is < 60bpm
    - Give chest compression (not CPR)
    - Stop the chest compression when child became conscious or the HR > 60 bpm
    - Do not think about giving atropine or adrenalin unless
        - If patient having a vagal attack - after an injection/ after intubation/ vomiting causing esophageal irritation
            - 1st assessment - Optimize oxygenation
            - 2nd assessment - Atropine dose is 20 mcg/kg or
            - If not helpful - Adrenalin 10 mcg/kg

Dr Marwan Kabir

Tachycardia

On assessment when coming to circulation

Child is conscious, normal CRFT, normal BP - compensated/ stable

- If SVT
    - If stable - vagal maneuvers
        - Valsalva maneuvers – blow to the syringe
        - carotid massage
        - Adenosine 100mcg/kg or 150mcg/kg according to WETFLAG
    - If unstable – DC shock 1J /Kg.
- If VT
    - If stable - Amiodarone IV 5mg/kg over 20 min
    - If unstable – synchronized DC shock 1J/kg

If child is unconscious with signs of life and low BP or prolonged CRFT

- Narrow or Wide complex tachycardia - Give synchronized DC shock 1st 1J/kg and 2nd 2J/Kg and 3rd 4J/kg according to WETFLAG
- Should give sedation if child is conscious before DC shock and preferred method is intranasal/ IM ketamine/ or IV if IV access available

After 1st shock - as the rhythm is the same please prepare the defibrillator to 2nd shock for 2J/kg and mean while I will assess the Disability and Exposure

Then again come reassessment and on C for HR if same present - Give the 2nd shock

after 2nd dose if same present and child is unstable consider giving amiodarone 5mg/kg over 20 min before the 3rd shock

---

Apparent Life-Threatening Event (ALTE)

What is the AVPU score?

- Child is Unresponsive.
    - Look listen and feel. Are there signs of life?
        - If no – Give 5 rescue breaths. Are there signs of life? Yes
- If signs of life present move to ABCDE

A - Is the airway patent? yes

- Apply high flow oxygen via non rebreather mask

Dr Manan Kabir

Expose the chest and connect all the monitors

B - What is the SPO2? 82%

- What is the RR? 10bpm
- What about trachea? central. What about neck veins? normal. What about inspection of the chest? normal. Palpation? normal. Percussion? Normal, Auscultation? Normal. Heat sounds? Normal
- This child is having low RR. please call the anesthetist as this child may need intubation. please ventilate the child with bag and mask with high flow oxygen. Is there is chest rise? chest rise is seen
- Please ventilate the child every 3 seconds (If adult every 5 sec)

Now we will move to circulation

C - What about the BP? 40/20mmHg, CRFT? 7, Peripheral pulses? weak, PR? 50bpm

- This child is having unstable bradycardia. Please call the pediatric cardiologist and optimize oxygenation with bag valve mask ventilation.
- Please insert 2 wide bore cannula and take blood for hematology, biochemistry, blood gases, blood culture and toxicology screaming.
- Start IV normal saline 10ml/kg bolus according to WETFLAG.

While the Fluid going on, I will move on to D

D - What is the AVPU score? responding to pain, any signs of lateralization? no. Pupils? B/L equally reactive, What about blood glucose?.

Now I will expose the whole body

E - Any abnormality seen? No, What about the temperature? 37.

4. Endorsement

I would like to hand over the child to pediatric ICU team.

Meanwhile I will reassess the child.

5. Reassessment

How is Airway? patent, Spo2? 94% PR? 50pbm

Please resume optimization of Oxygen with bag valve mask.

What is DD for this patient?

The most likely problem is ALTE

Dr Marwan Kabir

But I can consider toxicity - But unlikely as we don't have any history, it can be sepsis. But the temperature is normal. Do we have the ABG levels to check for Lactate? Lactate is normal. It is unlikely. It can be trauma, but is unlikely as there is no contusion or any abrasion noted in exposure. It can be Bronchiolitis, but unlikely as there is no hx of flu symptoms and the chest findings are normal.

What is your management plan for this patient? This child is having ALTE which needed resuscitation so it is in high risk category and I will suggest to admit in the ICU and need close observation.

Stridor

DD can be Foreign body or Croup

Child may be alert or unconscious

If Child is conscious ask about airway patency.

- Compromised airway. Child having sever stridor.
- Open the airway and is there any foreign body? No
- Give high flow oxygen and can ask to give oral dexamethasone 0.15mg/kg according to WETFLAG
- Call the pediatric ICU team as this patient needs intubation any time. While the dexamethasone working, I would like to continue assessment of the child

Expose the chest and connect all monitors

Continue assessment of the B, C, D, E and Hand over the child and go for reassessment?

If child start to Vomiting.

- Ask to clear the airway and ask is the airway patent? If no
- Go for nasopharyngeal airway and ask for patency? If still no,
- Go for oropharyngeal airway. If child is not tolerating or tolerating need intubation and call the pediatric ICU team. Until then, give bag and valve ventilation with high flow oxygen and ask to ventilate one in every 3s.

If child is intubated ask for

- What about chest rise?
- What about ETCO2?
- What about Spo2?

If all of the above are low - tell the Tube is out. If the anesthetist says he has seen the vocal cords while inserting the tube - Can you please auscultate the chest and see for B/L air entry.

On secondary assessment patient deteriorating or came with sever or life threatening or complicated croup can give

- Adrenalin (0.5ml/kg up to max)5ml undiluted 1:1000 nebulization
- IV/IM/PO dexamethasone 0.6mg/kg with high flow oxygen and need to inform ICU.

WESTEY Croup Score

Score	Stridor	Recession	Air entry	Cyanosis	Consciousness
0	None	None	Normal	None	Normal
1	With stethoscope	Mild	Reduced	-	-
2	Without stethoscope	Moderate	Very reduced	-	-
3	-	Severe	-	-	-
4	-	-	-	When agitated	-
5	-	-	-	At rest	Unconscious

Score 0 - 3 = Mild croup, 4 - 7 = Moderate croup, > 7 = severe croup

---

Anaphylaxis

On assessment there will be airway will not be patent

Ask to head tilt, chin lift, jaw thrust. any FB seen? No, Any secretions? No, Is the Lip and tongue appear normal? there is lip and tongue swelling.

1st assessment

- According to history and this finding, most probable diagnosis is anaphylaxis. Please give adrenalin IM according to WETFLAG to anterolateral aspect of the thigh in the right side.
- Take blood for mast cell triptase

2nd assessment

- If find new problem or same problem give 2nd dose of adrenalin in the left thigh.

3rd assessment

- If find new problem or same problem – patient is having refractory anaphylaxis. Inform pediatric ICU team. Please start adrenalin infusion.

Dr Marwan Kabir

4th assessment

- If find same problem or new problem
    - Regarding airway – give adrenalin nebulization
    - If same or new problem in breathing – give salbutamol

Doses

- Age >12 yrs. - 500mcg 1:1000 (0.5mg)
- Age 12 yrs. to > 6 yrs. - 300mcg 1:1000 (0.3mg)
- Age < 6yrs to > 6months - 150mcg 1:1000 (0.15mg)

Asthma / Bronchiolitis

On breathing there will be low Spo2 chest indrawing and accessory muscle use and tachypnoea. Auscultation - there will be B/L Wheezes

If child can inhale can ask to take 6 puffs of salbutamol MDI and mask evert 20 min

Then verbalize-

- This child is > 2yrs and according to chest finding this is most probably asthma.
    - Please give salbutamol nebulization
        - 2 – 5yrs = 2.5mg
        - > 5yrs = 5 mg

- This child is < 2yrs and according to chest findings most probable diagnosis is bronchiolitis.
    - Please clear the airway and give high flow oxygen in non-rebreather mask.
    - If child got low RR - asked to ventilate the child with bag valve ventilation

In Asthma on secondary assessment still found to be having low Spo2 and increased RR and B/L wheezes –

- Ipratropium 250mcg nebulization with salbutamol

- Prednisolone 1mg/kg (max 50mg) or dexa 0.3mg/kg (max 16mg) IV hydrocortisone 4mg/kg

Reassess every 30 min.

Dr Nawan Kabir

Choking

What is the AVPU score? Baby is alert

A – Airway

- Is the airway patent? No.
- Any FB? Yes
- Am I able to remove the FB? No
- Is the patient is coughing? Yes. Effective?
- Please encourage effective coughing. (please baby cough more.)
- No need to apply high flow oxygen if child is conscious

In assessment on finishing B, C, D, E ask

If any abnormality seen, call pediatric ICU team

- Any FB in the mouth?
- Am I able to remove?
- Is the child coughing? Effective
- I will encourage to cough effectively.

If they say child is tired or not coughing effectively

- Call the pediatric ICU team
- Give back blows and 5 chest thrusts if it is an infant (<1yr) or give 5 back blows and 5 abdominal thrusts If it is a child (> 1yr)
- After that Is the FB seen? or any FB in the mouth
- Repeat 5 back blows and 5 abdominal thrusts / chest thrust.
- Do not leave the airway until the FB seen or patient become unresponsive.

If child become unresponsive

- Look listen and feel. Any signs of life?
- Ask to open the airway and look for any FB. If not seen
- Give 5 rescue breaths with bag valve mask. Are there signs of life?
- Then start high quality CPR 15 chest compression: 2 ventilation via bag valve mask ventilation

If the nurse say I can see the FB.

- Am I compatible to remove the FB?

If child went in to cardiac arrest

- The most probable rhythm is PEA

Dr Marwan Kabir

- Verbalize - Give adrenalin 10mcg/Kg according to WETFLAG and I would like to consider 4 H ad 4 T and the most probable diagnosis is hypoxia.
- 2 min passed - stop, switch, analyses the rhythm - Normal sinus rhythm - is there signs of life - yes

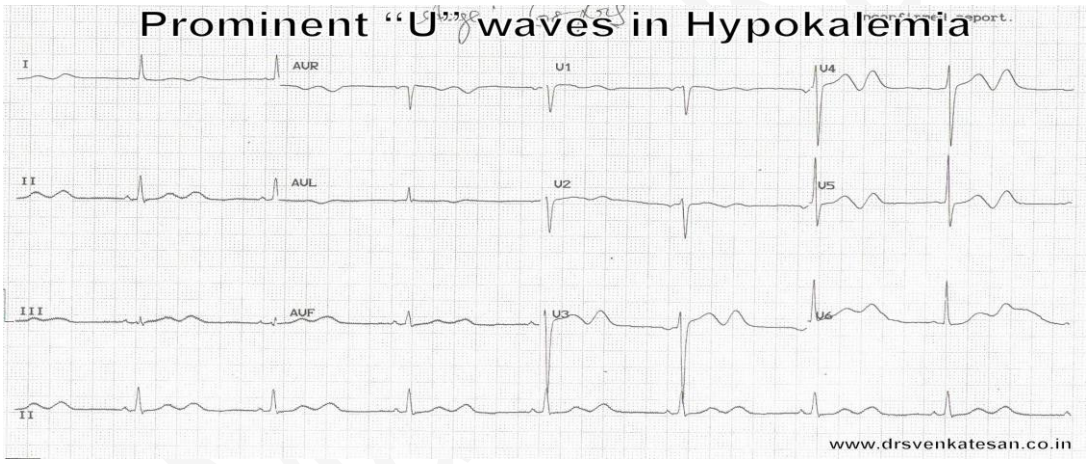
Congratulations we have achieved ROSC. Is the FB visible?

Diarrhea or Vomiting

In assessment most common abnormality found is hypovolemia and hypokalemia

Follow the general approach and manage the abnormality

ECG will show bradycardia and U waves



Do not correct the hypokalemia after seeing the ECG unless it is arrhythmia

If bradycardia - Ask to optimize oxygenation and give fluids.

When ABG results available ask for K levels - If low – (ideally in central line)

- If patient is in cardiac arrest
  - Give KCl 10mmol/l in 100ml bolus
- If patient having arrythmia
  - Give KCl 10mml/l over 30 min
- If patient is stable
  - Give KCl 10mmol/l over 1 hr

Seizures

Start medication after 5 min of starting seizing - if not, complete the ABCDE assessment.

- 1st line – Lorazepam - 0.1mg/kg
- 2nd line (after 10 min) – Lorazepam
- 3rd line (after 10 min) – Levetiracetam (30mg/kg over 5min / Phenobarbital (20mg/kg over 5 min) / Phenytoin (20mg/kg over 20 min)
- If not responding – go for rapid sequence induction (propofol /thiopental)- after 5 min if given levetiracetam or phenobarbital and after 20 min if phenytoin.
- If no any drugs given from ambulance crew, and child is seizing for more than 5min and no IV access give buccal midazolam 0. 5mg/kg according to WETFLAG. (If IV access- Give IV lorazepam)

If found to be having fever - Take sepsis 6 -

- 3 Out - Blood culture, ABG, Urine output
- 3 In - Oxygen, Fluids, Antibiotic (IV ceftriaxone 80mg/Kg according to WETFLAG)

Neonatal duct dependent circulation

Common causes for neonatal cardiac arrest

- Congenital heart disease
- Lung hypoplasia/ Congenital pneumothorax (less likely and present at birth)
- Diaphragm - diaphragmatic hernia

Assessment

Most finding in breathing

- If the lung normal (trachea, palpation, percussion, auscultation normal) it is not lung problem
- Heart – lung normal, heart sound abnormal (S3, S4, Murmur) distended neck veins and basal crepitations)
- Lung problem – trachea deviated, and other lung signs.
- Bowel sounds heard in lung – diaphragmatic hernia
- In circulation with peripheral pulses – ask about central pulses. Brachial pulses? Femoral pulses? (femoral absent in cardiac problem)

Intervention

- When SPO2 is low (75 -85%) – it could be congenital problem. So, keep the SPO2 in 75 – 85%. Give O2 (not high flow O2)

Dr Marwan Kabir

- If basal crepitation's seen with hypotension - This is congenital heart disease with heart failure. Please call the pediatric cardiologist and pediatric ICU team. Give IV fluids 10ml/Kg only if BP is in low side.
- If cardiac arrest in neonate CPR is given for 3:1 and adrenalin 10mcg/kg
- Do chest X-ray in 2nd B, and ECG in 2nd C.

Endorsement to the specialist

Congenital heart disease

This 4-day old neonate found unresponsive at home and found to be having murmur with s3 and basal crepitation's and low BP and resuscitation done. So, this is a congenital heart disease with heart failure. Please call the pediatric cardiologist and this baby needs echo cardiograph and cardiac catherization.

Congenital pneumothorax

This 4-day old child found unresponsive at home and on assessment found to be having hyper resonant and reduced lung sounds. This looks like congenital pneumothorax please call the pediatric ICU team and cardiothoracic surgeon. This baby needs chest drain.

Diaphragmatic hernia

Patient having tympanic percussion in the left side with bowel sound which is suggestive of diaphragmatic hernia. Please call the pediatric surgical team. This patient needs corrective surgery

---

Newborn resuscitation

1. Introduction

We are going to receive and mother who has given birth just now. Please call the obs and gyne team and neonatal resuscitation team.

Let us all wear was our hands and wear our PPE.

2. Hand over

Is the child preterm or term?

Start the clock

If child is preterm (<32 weeks)

- Please do delayed cord clamping
- Place the baby undried in plastic wrap + radiant heat

Dr Marwan Kabir

If the child is term

- Do delayed cord clamping
- Dry and warp the baby and stimulate and weep the baby warm

3. Assessment

APGAR score - (Color, Tone, Breathing, Heart rate) Breathing? HR? Color? Muscle tone?

Apgar Scoring System

Indicator		O Point	1 Point	2 Points
A	Activity (muscle tone)	Absent	Flexed arms and legs	Active
P	Pulse	Absent	Below 100 bpm	Over 100 bpm
G	Grimace (reflex irritability)	Floppy	Minimal response to stimulation	Prompt response to stimulation
A	Appearance (skin color)	Blue; pale	Pink body, Blue extremities	Pink
R	Respiration	Absent	Slow and irregular	Vigorous cry

A - Is the airway patent? No

- Are there secretions? yes Please clear the airway. Is the airway patent? yes
- Do not give O2. Not important.

B - Is the chest moving? No

- Give 5 inflation breath with bag valve mask one-person technique each inflation over 3s. Is the chest moving? No
- Give 5 infaltional breath with bag valve mask 2-person technique (one holds the mask and other one pushes the bag) each inflation over 3s, with head in neutral position. Is the chest moving? Yes
- If no – repeat the 2-person technique until they say yes. Then move to circulation.

C - What about the Color of the baby? Pale, What about the HR? 40bpm (< 60bpm is cardiac arrest)

- Give 30 ventilation, 1 ventilation every 1 sec for 30s. What about the heart rate now? 40bpm
- Start high quality CPR 3 chest compressions and 1 ventilation for 30 s. What about the HR now? 40bpm
- Please continue CPR 3:1 and get umbilical access, extract blood for routine
- Give adrenalin 20mcg/kg according to WETFLAG.
- I would like to consider the 4H And 4T and other factors which are
    - Hypovolemia
    - Tension pneumothorax
    - Congenital Abnormalities
- What about the heart rate now? 100bpm

Hand over

Ok. Guys we have achieved ROSC. I would like to hand over this neonate to neonatal ICU.

Reassessment

Meanwhile I would like to reassess the baby.

What about the airway? patent, What about the Spo2? 94%. Expose the chest. what about the RR? What about the neck veins? What about the trachea? on inspection? percussion? Auscultation? What about the HR? 100bpm. What about the color? pink. What about the tone of the peripheries? normal

---

Cardiac arrest

What about the AVPU score?

Unresponsive.

Any signs of life?

No signs of life.

Please open the airway and give 5 rescue breaths. Are there any signs of life.?

No

Team child is in cardiac arrest please call the pediatric ICU team. Start high quality CPR. 15 chest compression to 2 ventilation.
Please expose the chest and connect all monitors and defibrillator
Take 2 IV access and take blood for hematology, biochemistry, blood gases and toxicology screening.
Start IV normal saline 10ml/Kg According to WETFLAG.
I will assess the rhythm.
Narrow complex tachycardia

It is non shockable rhythm. Please continue CPR and prepare adrenalin 10 mcg/kg.

I would like to consider 4H and 4T and child is 4 yrs. and most probable cause is hypoxia and hypovolemia.

2 min passed?

Stop, switch, analyze.
Normal sinus rhythm. Are there any signs of life? Yes
Well done team. We have achieved ROSC. I would like to assess the patient.
Do the complete assessment of ABCDE.

Dr Marwan Kabir

Procedural Skills - 1

Approach

Pre procedure

- Indication
- Contraindications
- Complications
- How to avoid and treat complications

During procedure

- Preparation
- Procedure

Post Procedure

- Post procedure management
- Post procedure advice and follow up
- Documentation

Practical skill Stations

Head

- Basic airway management, Intubation (RSI in Alive) or intubation in arrest
- Surgical airway management

Neck

- Fitting a cervical collar
- Clearing a cervical spine
- Lateral cervical spine x-ray interpretation

Eye

- Ophthalmoscope

Ear

- Otoscope

Chest

Dr Marwan Kabir

- Chest drain: Open /Seldinger Technique
- Thoracocentacis/ Pleural aspiration
- Defibrillator/ Pacing/ Ventilator

Abdomen

- Ascitic drainage

Back

- Lumbar puncture

Joint

- Procedural sedation and shoulder reduction Technique
- Knee aspiration
- Back slab application
- Traction splint

Access

- Arterial cannulation
- Central venous cannulation
- Intravenous needle insertion

Male catheterization/ Female catheterization

Nerve block

- Wrist block
- Hematoma block
- Digital nerve block
- Facia iliaca nerve block
- Femoral nerve block
- Ankle nerve block
- Back regional field block for abscess
- Supra orbital nerve block
- Infra orbital nerve block
- Mental nerve block
- Dental nerve block
- Wound infiltration (Local infiltration for suturing

Wound assessment

- Suturing non touch technique/ V shaped

Dr Marwan Kabir

Basic airway management - Teaching

Introduction

I need to wash my hands and wear my PPE

Good morning, I am Dr. Marwan kabir, May I know your name and level please?

Nice to meet you. I believe you have something to discuss with me today. Is that right?

Great, basic airway management is an important topic in ED practice.

How much do you know so far about Adult Basic airway Management.?

Anything specific you want to learn?

Ok. You will need to know the following - Learning objectives

1. Preparation of equipment

2. Safety and response

3. Response of the patient

4. Opening airway maneuver

5. Clearing the airway

6. Airway adjuncts (OPA/NPA)

7. Oxygen sources - Non rebreather mask / Bag valve mask

8. Monitoring

At the end I will give you good websites and videos to guide you more in teaching and tomorrow I will teach you Advanced adult airway management. Please listen to me and feel free to ask me anytime

1. Preparation of equipment's

- Pillow
- Airway trolley
- Suction
- OPA/ NPA
- NRB with reservoir bag
- Bag valve mask
- Oxygen supply

2. Check for safety of the patient and you and use personal protective equipment's

Dr Marwan Kabir

3. Check for response

Is the patient responsive or responding?

If responsive - Is the Patient talking - If talking the airway is patent.

If Unresponsive - Look listen feel and is there signs of life

If signs of life present - Is the airway patent or compromised

If not patent or compromised - look for secretions, any tongue swelling, stridor or gurgling or any foreign body

4. Open the airway

If the airway is not patent / compromised - Head tilt, chin lift, jaw thrust and open the airway

If you suspect any trauma first do manual immobilization of the cervical vertebral and do only jaw thrust, and look for airway patency. Do you follow me?

5. Clearing the airway

You can do fine suction for secretions and bleeding, Rigid suction for vomiting, and use this Magill forceps to remove any foreign body. Then look for airway patency

6. Airway adjuncts

After clearing the airway if still the airway is not patent You can use the airway adjuncts- these are oropharyngeal airway and nasopharyngeal airway

OPA can be used when there is absent gag reflex or cough and if the patient tolerating the OPA - then he will need intubation.

We have different sizes of OPA and they can be sized measuring from the midpoint of the incisors to the angle of the mandible. It is inserted upside down and once in contact with back of the throat, OPA is rotated to 180 degrees.

NPA is used when there is gag reflex or cough and patient is conscious or semiconscious or in seizures

It is sized from the lateral edge of nostril to tragus of the ear. It should be inserted after lubricating, perpendicular to the face.

7. Oxygen sources

If the airway is patent you can administer Oxygen via non rebreather mask and nag valve mask. Bot applied with correct sizing with covering the mouth and nose and without covering the eyes.

Non rebreather mask is used in all types of resuscitation - ALS, APLS, ATLS with a patent airway. It delivers 100% oxygen to the patient

Dr Marwan Kabir

Bag valve Mask is used when the SPO2 is less than 94% with non-rebreather mask, or if the respiratory rate is less than 12 or the patient is tolerating the OPA and while preparing for intubation. Do you follow me?

The BVM is applied to the mouth and nose holding the mask with thumb and index finger as C shape and the other 3 fingers as E shape to hold the jaw and should ventilate with bag. Then should look for chest rise.

If no chest rises, we can go for 2-person technique. Like one person holding the mask and other one ventilating the patient and look for any chest rise. if there is no chest rise - should go for Advanced airway like tracheal intubation or surgical airway.

After successful ventilation with BVM - we should monitor for SPO2 and ETCO2.

So, doctor, now can to sow me how to size and insert the OPA and NPA?

Excellent.

Do you have any further question?

Thank you.

Rapid sequence induction - Peri arrest

Introduction

Good morning. I am Dr. Marwan, ED registrar, and here to intubate the patient with collapse. May I know you name and level please?

Nice to meet you, Are you ALS provider?

Ok. Are you happy to manage airway? can you prepare all the equipment's like difficult airway trolley and other equipment?

I need another ALS trained nurse to manage the circulation.

Please prepare all necessary equipment for circulation management.

We are going to receive a patient collapsed at restaurant after eating kind of seafood.

Please call the adult resuscitation team

Let us all wash our hands and wear our PPE.

Hand over

Any endorsement from the ambulance crew? Thank you

Dr Marwan Kabir

Assessment

Hello, hello. Is the patient responding?

Not responding. Look listen feel. Is there signs of life? Yes, there is signs of life

Is the airway patent? Not patent.

Ok. head tilt, chin lift and jaw thrust. Is there any lip swelling or tongue swelling? Yes

Please give adrenalin 0.5mg to the right thigh anterolateral part IM. We can repeat it after 5 min if the symptoms persist.

Please insert Nasopharyngeal airway and apply high flow oxygen with non-rebreather mask. Please call the anesthetist. This patient may need rapid sequence induction and will get a difficult airway management.

I will do intubation. Please prepare suction catheter, 2 laryngoscope, 2 tracheal tubes with correct sizing, syringe for cuffing and bogie.

Please prepare rapid sequence induction agents.

I will preoxygenate this patient to 5 min with non-rebreather mask and until then I will assess the other systems

B - Expose the chest, connect all monitors, what is the RR? What is SpO2? How about the trachea? What about the neck veins? Inspection of the chest? Palpation? Percussion? Auscultation of the chest and heart sounds?

I am happy with the airway. I will go to circulation

What is the BP? CRFT? Peripheral pulses? HR?

Please insert 2 Iv cannulas and extract blood for biochemistry, hematology, blood gases, blood culture and toxicology.

Please start IV normal saline 500ml over 10 min.

Patient still not talking. Is the anesthetist arrived?

Ok please prepare the RSI medication, Propofol 1mg/kg, Fentanyl 1mcg/ kg, Rocuronium 0.6mg/Kg

I will go to D

What is the GCS of this patient? Any lateralization? Pupils? Blood glucose?

I will expose the body. Any rashes? What about the temperature?

Is 5 min passed.

Is the airway patent? Not patent. Please give another dose of IM adrenalin 0.5mg.

Dr Manan Kaur

Has the anesthetist arrived?

I will intubate the patient

Please give the RSI medication and I will use the laryngoscope with non-dominant hand to see the vocal cords and insert the tube with dominant hand and insert the tube through the vocal cords. after that I will inflate the cuff. I will connect the tube end to the bag valve and ventilate. Is there a chest rise? No,

What about the Spo2? What about the ETCO2?

So, the tube is out. I will deflate the cuff and remove the tube and oxygenate with bag valve mask for another 5 min.

5 min passed

I will try with another laryngoscope blade, other tracheal tube and try BURP technique and use gum elastic bogie to insert the tube. Tube inserted. Cuff inflated. Is there a Chest rise? No

Ok I will deflate the cuff and remove the tube and again oxygenate with bag valve mask for 5min Is the anesthetist arrived?

5 min passed.

Ok this is the final attempt for Intubation and I will intubate. Is there a chest rise?

Ok I will deflate the cuff and regain bag valve mask ventilation for another 5 min. Is the anesthetist arrived? Please prepare Laryngeal mask airway.

5 min passed.

I will insert the laryngeal mask airway. sizing, lubricating and inserting. the mask inflated. then ventilated with bag mask. Is there a chest rise? No

So, we have failed the plan B also. I will deflate the LMA and remove it ad regain ventilation with bag valve mask. Is the anaesthetize arrived? No

With bag valve mask Is there a Chest Rise? Yes. What is the SPO2? What is the ETCO2?

Ok we will continue ventilating the patient bag valve mask until the patient regain consciousness.

After anesthetist arrive, I will hand over this patient.

If bag mask ventilation failed

should go for cricothyroidotomy (surgical airway)

If supraglottic airway is successful

We have 4 options

- We can wake the patient up (continue ventilation until the anesthesia wear off)
- Can intubate the trachea via the supraglottic airway
- Proceed without intubating the trachea
- Tracheostomy or cricothyroidotomy

Difficult intubation in Cardiac arrest

Introduction

Handover

Assessment

Hallo. is the patient responding? Not responding

Look, Listen and feel. Are there signs of life? No signs of life.

Ok patient is in cardiac arrest. Please start high quality CPR. Start chest 30 compression to 2 ventilation with bag valve mask after suctioning the airway and putting an airway adjunct.

Please expose the chest connect all monitors and get 2 large IV cannula and extract blood for biochemistry, hematology, blood gasses, blood culture and toxicology.

Start IV normal saline 500 ml over 10 min.

I will consider 4H and 4Ts.

After 2 min stop switch and Analyze the rhythm. If the rhythm is sinus rhythm please resume CPR 30:2 and take adrenalin 1mg 1:10,000 IV rapidly.

Please call the anesthetist for intubation.

I will intubate the patient while assessing the next rhythm within 10s and please prepare difficult airway trolley 2 laryngoscope, 2 ET tube, syringe, suction catheter gum elastic bogie, tube ties, filter, tubing for capnography.

2 min passed

Stop, switch, analyses the rhythm

Is the anesthetist arrived? No

I will intubate the patient. I will visualize the vocal cords with laryngoscope and insert the tube through the vocal cords. I will inflate the cuff with a syringe and ventilate with bag valve.

Is there is a chest rise? no, SPO2? Not reading. ETCO2? Not reading

I think the ET tube is out and I will deflate the cuff and remove the tube. Please continue the high-quality CPR for 2 min and I will oxygenate for 2 min.

Dr Marwan Kabir

2 min passed

I will try with another laryngoscope blade, other tracheal tube and try BURP technique and use gum elastic bogie to insert the tube. Tube inserted. Cuff inflated. Is there a Chest rise? No

Ok I will deflate the cuff and remove the tube and again oxygenate with bag valve mask for 2min Is the anesthetist arrived? No

2 min passed.

Ok this is the final attempt for Intubation and I will intubate. Is there a chest rise?

Ok I will deflate the cuff and regain bag valve mask ventilation for another 2 min. Is the anesthetist arrived? Please prepare Laryngeal mask airway.

2 min passed.

I will insert the laryngeal mask airway. sizing, lubricating and inserting. the mask inflated. then ventilated with bag mask. Is there a chest rise? No

So, we have failed the plan B also. I will deflate the LMA and remove it ad regain ventilation with bag valve mask. Is the anesthetist arrived? No

With bag valve mask Is there a Chest Rise? Yes. What is the SPO2? What is the ETCO2?

Ok we will continue ventilating the patient bag valve mask until the continuation of CPR

Fitting a cervical collar

Introduction

I need to wash my hands and wear my PPE

Good morning, I am Dr.Marwan, May I know your name and level please?

Nice to meet you. I believe you have something to discuss with me today. Is that right?

Great, fitting a C. spine collar is an important topic in ED practice.

How much do you know so far about Fitting a C. spine collar.?

Anything specific you want to learn?

Ok. You will need to know the following - Learning objectives

1. Parts of the C. collar

2. MILS

Dr Marwan Kabir

3. Sizing cervical collar

4. Fitting a C. spine collar

And at the end I will give you good websites and videos to guide you more in teaching fitting a C. spine collar. and tomorrow I will teach you C. spine clearance. Listen to me and follow me and please feel free to ask me at any time.

Parts of C. collar

This is the anterior part, and this is the posterior part. Anterior part has 2 parts. This is the movable part and this is the fixed part.

This yellow part is the movable part and this Blue part is the fixed part. You can adjust the length by moving this yellow part and fix according the length of the neck

Manual immobilization

This is done when there is suspected cervical injury and should maintain until the C. spine is applied and the cervical spine is immobilized. This is done by the head and the neck is kept is one alignment without allowing the movement of the cervical spine.

Sizing cervical collar

The length is measured while patient is neutral position. Or you have to keep the neck manual immobilized position. Do you know How to immobilized the neck.? yes That's right.

Now in this position we can measure the length between the trapezius muscle and the jaw line. It is measured with number of fingers

Fitting a C. collar

Before fitting we should remove all the jewelry and broken glass prior to applying. After correct sizing, we can adjust the length and apply the collar around the neck. so first we should keep the back part of the collar in the midline. Then wrap around the patient neck and secured.

Blocks and tape may then be applied the person manually immobilizing the cervical spine will release the hand.

After applying the C. collar need to check the airway patency.

Indications

- Whiplash injury
- Neck surgery
- Nerve compression
- General neck pain or stiffness

C spine clearance - Canadian C. spine rule

After applying you should go for normal primary survey, ABCDE, and come to secondary survey

Look for any high-risk factors

- > 65 yrs. od age
- Any paresthesia in the extremities
- Dangerous mechanism of injury
    - Fall from Hight > 3 feet or 5 stairs
    - Axial load to head e.g.: diving
    - Motor vehicle collision high speed (>100km/hr.), rollover, ejection
    - Motorized recreational vehicles
    - Bicycle struck or collision

Keep cervical collar and do radiography

If no high-risk factors not even one of the low risk factors like simple rear end MVC, sitting position in ED, ambulatory at any time, delayed onset of neck pain, absence of midline C. spine tenderness then they are not low risk and keep the cervical collar and do radiography.

If there is one of the low risk factors - ask the patient to rotate the neck actively 45 degrees left and right - If cannot to it - Keep the C. collar and do radiography.

If can rotate the neck - Then remove the collar and no need of radiography and you can discharge patient giving an appointment to GP clinic.

Can you repeat for me the fitting procedure for me?

Excellent. Do you have any further questions? Thank you.

I need to dispose my PPE and wash my hands.

Dr Nawan Kabir

Lateral Cervical Spine Interpretation

Introduction - Teaching

Stranded views of cervical spine x-ray is - a lateral, antero posterior (AP), odontoid/open mouth view and "swimmers view" (If you are struggling to see C7/T1)

I will teach you the following

A

- Adequacy - C1 down to C7/T1 junction
- Alignment - Anterior longitudinal vertebral line, Posterior longitudinal vertebral line, spinolaminar line and spinous process line.

B - Bone- see all the vertebral body

C - Cartilage - Intervertebral space - any narrowing

D - Dense - You can see the odontoid process. But to clearly asses - we have to do Open mouth view.

E - Extra - Prevertebral soft tissue swelling

- From C1 - C4 the thickness from bone to air column should be < 7mm. This can be measured by comparing the vertebral body and it should be 1/3rd of the thickness of the vertebral body.
- From C4 - C7 this thickness should be < 22mm and this is the whole length of the vertebral body.

Lastly check for additional View

At the end I will give good web sites and videos to guide you more in teaching interpretation of cervical spine X - ray, and every day I will teach you more. So please listen to me and follow me and please feel free to ask me at any time.

Did you understand so far?

Do you have any questions?

Thank you

Ophthalmoscope

I need to wash my hands and wear my PPE

Good morning, I am Dr. Marwan, May I know your name and level please?

Nice to meet you. I believe you have something to discuss with me today. Is that right?

Dr Marwan Kabir

Great, Using Ophthalmoscope is an important topic in ED practice.

How much do you know so far about ophthalmoscope?

Anything specific you want to learn?

Ok. You will need to know the following - Learning objectives

- Parts of the ophthalmoscope
- Technique

And at the end I will give you good websites and videos to guide you more in learning how to use ophthalmoscope. Now, I will talk loudly, so please listen to me and follow me and please feel free to ask me at any time.

Parts of Ophthalmoscope

First, I will start with parts of ophthalmoscope

- Handle and battery case
- On/off switch and brightness control
- Window showing refractive lens number
- Viewing aperture
- Refractive lens dial

Introduction to patient

Good morning, I am Dr.Marwan, ED registrar, May I know your name and age please?

Nice to meet you. I have been asked to take data from you and examine you as well is that ok with you?

And this my colleague, for the purpose of teaching, I need to talk a little bit loud, would it be ok with you?

Any one attend with you?

Would you mind any if a nurse attends with us?

Do you have any pain, So I will offer pain killer for you?

How can I help you today?

Oh. I am sorry for that, I need to check your vital signs.

Brief History - AMPLE

A: Allergy: Do you have any Allergy?

Dr Marwan Kabir

M: Medications: Are you taking any prescribed medications?

P: Past medical disease: Do you have any past medical history or any surgery?

L: Last ate and drink: When did you eat your last meal?

E: Event: Can you tell me more about vision problem - Onset, Duration, Progression, Which Eye? Painful or painless?

ICE: What is your concern?

Examination

I should start from the normal eye, but for the purpose of the exam, I will start from the abnormal eye.

Inspection

- Eyelids
- Eyelashes
- Conjunctiva
- Sclera
- Cornea
- Pupil

Fundoscopy

to examine from the Ophthalmoscope, I will have approach near to you. I will not touch your eyeball and I will approach slightly lateral to you. I will hold the Ophthalmoscope as a pen in my right hand to assess the right eye with my right eye. I will assess from the ophthalmoscope the following

- Red reflex
- Anterior segment
- Posterior segments

Red reflex

I will assess the red reflex at around 30cm then I will move in closer whilst maintaining the red reflex and examine the retina with the ophthalmoscope.

Anterior Segment

First, I will assess the anterior segment of the eye using the ophthalmoscope and fluorescein dye which appear yellow under the blue cobalt light filter of the ophthalmoscope to see corneal ulcer or abrasion.

Dr Marwan Kabir

Posterior segment

I will assess the back of the eye, and I need to darken the room. Your pupils should be dilated with mydriatic eye drops such as tropicamide 1% and you will be unable to drive for a period of 3 - 4 hours.

- Optic Disc - I will ask the patient to see straight and I will follow of the retinal branches and see the optic disc with is in the nasal border of the eye. I will see the color, margin cupping.
- Retinal vessel pathology - There are 4 retinal vessels coming from the optic disc, they are superior nasal and superior temporal and inferior nasal and inferior temporal vessel. We look for arteriovenous nipping, any neovascularization
- Macula - To assess the macula, can you look directly into the light to assess the macula. Macula is in the temporal past of the retina. We look for any features od macula degeneration.

To finish my Examination, I need to do complete eye examination, near vision with fine print, color vision with Ishihara chart, examine with slit lamp and intraocular pressure using tonometry.

Diagnosis and clinical reasoning

Central retinal artery Occlusion

According to examination of the beck of your eyes, I am so sorry to tell you that this is the occlusion of the central retinal artery. We need to keep you in observation room, check your vitals and do general physical examination and examine your brain, nerves and face as well. I would like to run some test like heart tracing, FBC, liver, kidney, and thyroid functions, coagulation profile blood gases to figure out exact treatment with you which may include gentle massage of the eye ball and give you some medications like NTG, acetazolamide and timolol and urgent referral to Ophthalmologist.

Papilledema

According to examination of the beck of your eyes, I am so sorry to tell you that this due to compression of the optic disc which is due to increased intracranial pressure. We need to keep you in the resuscitation room, check your vitals, do general examination including CNS examination, run some blood test including heart tracing, Liver, kidney functions coagulation profile, thyroid function and brain imaging to figure out the exact cause of this pathology and treatment which include elevate the head end of the bed to 15 degrees, administer mannitol, apply tropicamide, and timolol urgent referral to Ophthalmologist.

Central of vein Occlusion/ Branch retinal vein occlusion

I am so sorry to tell you that this due to occlusion of the central vain/ branch of the vain supplying the back of the eye. We need to keep you in the observation room, check your vitals, do general examination including CNS examination, run some blood test including heart tracing, Liver, kidney functions coagulation profile, thyroid function and brain imaging to figure out the exact cause of this pathology and treatment which include urgent referral to Ophthalmologist.

End

So, Mr. ..... did you understand what I have told you to be sure that I correctly explained to you?

Would out management plan be ok with you?

Do you have any further questions?

Thank you

I need to dispose my PPE and wash my hands

Otoscope

Introduction

I need to wash my hands and wear my PPE

Good morning, I am Dr. Marwan, May I know your name and level please?

Nice to meet you. I believe you have something to discuss with me today. Is that right?

Great, using otoscope is an important topic in ED practice.

How much do you know so far about otoscope?

Anything specific you want to learn?

Ok. I will teach you the following - Learning objectives

- Parts of otoscope
- Technique in and adult and in a child
- Assessment of hearing: Weber's and Rinne's tests

And at the end I will give you good websites and videos to guide you more in learning how to use ophthalmoscope. Now, I will talk loudly, so please listen to me and follow me and please feel free to ask me at any time.

Parts of otoscope

I will start by parts of otoscope

- Handle and battery case
- On/Off switch and brightness control
- Magnifying lens which can be moved to allow instrumentation
- Attachment of specula
- Different sized speculate.

Dr Marwan Kabir

Introduction to patient

Good morning, I am Dr.Marwan, ED registrar, May I know your name and age please?

Nice to meet you. I have been asked to take data from you and examine you as well is that ok with you?

And this my colleague, for the purpose of teaching, I need to talk a little bit loud, would it be ok with you?

Any one attend with you?

Would you mind any if a nurse attend with us?

Do you have any pain, So I will offer pain killer for you?

How can I help you today?

Oh. I am sorry for that, I need to check your vital signs.

Brief History - AMPLE

A: Allergy: Do you have any Allergy?

M: Medications: Are you taking any prescribed medications?

P: Past medical disease: Do you have any past medical history or any surgery?

L: Last ate and drink: When did you eat your last meal?

E: Event: Can you tell me more about hearing problem - Onset, Duration, Progression, Which Eye? Painful or painless? any trauma?

ICE: What is your concern?

Examination

Look

I would like to examine your ears, this will involve me having a look and feel inside your ears using a special piece of equipment known as an otoscope. I would like to assess your hearing as well. Would that be OK with you?

First, I will ask to smile and look for any deviation to confirm that there is no nerve damage.

Then I will look from front and behind and side ways to look for any deformities or swellings seen in the external ear. I will do the same in the other ear also.

Mr. Junior doctor, I should stand slightly to the patient's side and begin by inspecting the outer ear for any skin changes, signs of inflammation or discharge, abrasions or any foreign body.

Dr Marwan Kabir

Feel

I am going to feel the external ear, start by the tragus, pinna, cauliflower ear and then pre- and post-auricular lymph nodes

I will do the same in the other ear too.

Examination in ears

I will ensure otoscope has a working light source and magnifying lens and I will place a speculum on to the end.

Mr. patient, I am going to hold your ear

Dr. junior doctor, Holding the otoscope as you would hold a pen, use your free hand to gently hold the pinna of the ear and pull it upwards and posteriorly as this maneuver straightens the ear canal which is normally curved. Be cautious, not to hurt the patient.

Next insert the speculum of the otoscope just inside the external auditory meatus and asses the walls of the canal for any apparent changes. Any skin changes, inflammation, discharge wax or foreign body such as an insect will be seen.

As the speculum is placed deeper the tympanic membrane will be seen. and can be assessed for color, shape, light reflex, perforation or scarring.

Next examine the other ear with the same technique.

I need to change the speculum on to the otoscope before examining the other ear and dispose it.

Mr. Patient, could you let Dr. Junior to examine the other ear?

Excellent

Technique in a child

Dr. Junior, the examination is easy when the child is held in a correct way

Ask the parent to sit on an upright chair, then the child be placed on the lap, so they are facing to one side.

The parent places the hand on the child's head and holds it against their chest.

Their other arm wrapped around the child's body and arms, so their movement is restricted.

The exposed ear can be examined, and then repeat for the other ear

Gross hearing assessment

Mr. Patient, I am going to whisper a number from 60cm and occlude the other ear by touch the tragus.

Dr Manvan Kaur

Weber's test

Mr. Patient. I am going to use 512Hz tuning fork and place in the middle of your forehead. After setting it in motion by striking it on my knee. Where do you hear the sound louder, Left or right ear?

Normal: Sound is equally in both ears.

Sensorineural deafness: Sound is heard louder on the side of the intact ear.

Conductive deafness: Sound is heard louder on the side of the affected ear.

Rinne's test:

Mr. Patient, I am going to use a 512hz tuning fork and place it in this time on the mastoid process and tell me when you can no longer hear it. - I no longer hear it

Then I will put it in front of the ear, and tell me if you still hear it?

Could you let Dr. junior to do it in the other ear?

Excellent Dr. Junior

Mr. Patient now I finished my examination

Normal: Air conduction > Bone conduction

Sensorineural hearing loss: Air conduction > Bone conduction

Conductive hearing loss: Bone conduction > air conduction

Management plan

Perforation of tympanic membrane

According to examination of the inside of the ears, most likely problem is perforation of the tympanic membrane because of trauma. We need to keep you in the observation room, check your vitals, do general examination including CNS examination, to figure out the exact treatment with you which may include discharge. Most perforation will heal spontaneously within 6 - 8 weeks. You have kept the ear dry and I will give you print out leaflets for further management at home. I will give you referral to GP for reassessment. But if the symptoms persist or any worsening symptoms seen you can review any time in the ED.

Acute Otitis Media

According to the examination and finding you have inflammation of the middle ear which is called Otitis Media. I need to take a history and examine you whether you are systemically unwell, extreme of age like < 2 yrs. or old age, whether you have any comorbidity, B/L Otitis media, or otorrhea to start antibiotics.

Dr Marwan Kabir

Cholesteatoma

According to the examination you have a condition called cholesteatoma. It is a serious condition which can involve bone erosion and tympanic membrane perforation. So, I would like to keep you in observation room, do general examination and CNS examination and run some blood test like FBC, liver and kidney function and inflammatory markers. Also, I need to get brain imaging dome to exclude any bony erosion. Then I will refer you to ENT for further management.

End

Mr. patient, did you understand what I have told you to be sure that I have correctly explained to you?

Would our management plan be ok with you?

Do you have any further questions?

Thank you

Dr. Junior, do you have further questions?

Thank you

I need to dispose my PPE and wash my hands.

Chest drain Insertion

Introduction

Learning objectives

Today I will teach you the following

- Types of chest drain
- Indication/ contraindications/ Complications/ Preventing complications
- Examination of the chest
- Technique
- Assessment of success

At the end of the session I will give you websites and videos to learn more about this procedure. Now I will talk loudly so that you can follow me and you can interrupt me any time if you need any clarification.

3. Introduce to Patient

4. Pre procedure

Dr Marwan Kabir

Indication

- This chest drain is inserted in order to remove any collection of air and any blood inside the pleural cavity.

Contraindications

- Any bleeding disorders
- Any local infection to the entry site

Complications

- Local anesthesia toxicity
- Bleeding from the intercostal vessels
- Infection
- Damage to internal organs
- Pain

Preventing complications

- Can give adequate local anesthesia and strong pain killers
- Done by well trained professional
- Done under USS guidance if needed
- Give intralipid if there is any local anesthesia toxicity

Consent

Examinations

Expose the chest and look, feel and listen and auscultate and look for the chest x-ray and confirm the air or fluid onside the chest

Ask the patient to keep the patient's ipsilateral side of the elbow and the hand under his head.

Techniques

Equipment's for Open Chest drain

- Scalpel
- Introducer
- Chest drains
- Suturing equipment
- Gauze and sterile sheet
- Procedural tray
- Suture material

Technique

- First Identify the safe triangle

Dr Marwan Kabir

    - It is the composed by the anteriorly the lateral border of the pectoralis major, posteriorly the lateral border of the latissimus dosi, and inferiorly the 5th intercostal space which is in line with nipple of the patient. The tube is inserted just anterior to the mid axillary line
- Then we will wash our hands ad wear our PPE
- Then we will clean the area with povidone iodine. Then drape with sterile gown only exposing the inserting area.
- Then infiltrate with lignocaine 3mg/kg the skin, subcutaneous tissue until and pleural space. Wait until the effect take place.
- Then put an incision over the 5th intercostal space just above the 6th rib to avoid neurovascular bundle with a scalpel.
- Then do blunt dissection at the incision site until the pleural space with forceps.
- Then insert the index finger into the pleural space and swipe around to remove any adhesions and look for any internal organs.
- Then insert the chest tube in to the plural cavity and attach the other end of the tube to an underwater sealed bottle.
- Look for any air bubbling and any blood coming. If it is there the tube is successfully placed. Then secure the tube with suture material and apply dressing wit gauze over the inserted site.

Success after insertion

After insertion we can do chest examination by looking for the vitals and doing look, feel and listen to the chest and auscultation and asking the patient for improvement of symptoms.

Then we can do a chest X-ray to confirm the correct placement of the tube.

After inserting the patient has to be moved to HDU for motoring under high flow oxygen.

End

Did you understand what I have explained to you?

Do you have any questions?

Thank you

I will dispose my PPE and wash my hands.

Seldinger Technique Chest drain Insertion

Done only for pneumothorax

Dr Manan Kaur

Technique

equipment needed

- Iodine
- Sterile drapes with hole
- 20ml syringe
- 3 needles for local anesthesia
- Seldinger Chest Drain Kit
    - Scalpel and blade
    - Introducer needle with syringe
    - Guidewire
    - Dilators
    - Chest drain tube 12 FR
    - 3 way tap drainage tubing adaptor
    - Suturing material and equipment
    - Local anesthesia and equipment
    - USS with curved probe

Landmarks

Identify the safe triangle

Procedure

- Introduce 18 G needle attached to syringe inserted towards the apex of the lung while aspirating and needle introduced until air is aspirated.
- Syringe is removed and J wire threaded through the needle in desired direction into the pleural space
- Needle is then removed smallest dilator is inserted with rotating movement and inserted until the safety marker
- Then withdraw the dilator and insert the drain along the guidewire
- Thread the drain over the guidewire until the desired length.
- Retract the guidewire with insertion of the drain and connect the other end to the drain to bottle with underwater seal.
- Secure the drain with sutures and dress the insertion site.

Dr Mawan Kabir

Pleural aspiration and Tap

Aspiration of air

Learning objective

- Indication/ Contraindications
- Complications and how to prevent them
- The Technique
- Assessment of success

And at the end, I will give you websites and videos to follow. Now I will teach you the objectives

Indications

First, we will see the indications

- Primary pneumothorax with > 2cm air column in chest X-ray
- Symptomatic primary pneumothorax
- Secondary pneumothorax with 1-2cm air column in the chest X- ray

Contraindications

- Patient having B/L Pneumothorax
- Patient vitally unstable
- Secondary pneumothorax with > 2cm air column

Complication and how to prevent

- They can get infection
- Pain
- Bleeding
- Internal organ damage

To prevent them we will do this procedure with aseptic condition and do under USS guidance and monitor the patient while doing the procedure and give intralipid if the patient having any local anesthesia toxicity.

Technique.

So, before the procedure you should see the patient and take a small history and examine the lungs by looking and feeling and listening and auscultating and confirming the air column in the chest X-ray.

Then we should gather our equipment

Dr Marwan Kabir

- They are iodine, sterile drape with hole, 20ml syringe 3 needles for local anesthesia, introducer needle with syringe, 3 way tap with drainage tubing adopter, cotton gauze, USS with curved probe, Lignocaine 1%

Then we will wash our hands and wear our PPE

- First, I will show you the land mark. That is, we insert the needle in the 2nd intercostal space, midclavicular line.
- Then we have attached the patient to monitor and check for vital while doing the procedure.
- Then we will clean the area and drape with sterile drape and give lignocaine 3mg/kg maximum.
- Then we will wait until the anesthesia come in to affect.
- Then will introduce 16 - 18 G needle with a cannula which is attached to 20 cc syringe with sterile normal saline. Then we insert the needle while aspirating the syringe and look for air bubbling. If there is air bubbling, we can confirm we are in the plural space.
- Then we will remove the needle and syringe and keep the cannula and attach to 3 way tap with a connecting tube and a 50-cc syringe attached to the other end.
- Then we can aspirate air about 50 cc and release it to the atmosphere.
- We can aspirate minimum 500ml and maximum 2.5 Liters. But we can stop any time if the patient symptoms improve or if the patient started to cough.
- After the procedure we can close area with a sterile gauze.

Assessment of Success

After the procedure we can assess the success by doing a general examination and do complete chest examination. then asses the vitals and I will do a chest x-ray to see the air column.

Discharge plan

So, in the chest x-ray if a patient with spontaneous pneumothorax having an air column of less than 1 cm, we can discharge him with asking to follow up at GP clinic for repeat chest x-ray in 2 weeks' time.

If it is secondary pneumothorax if the patient having a < 1cm air column, we can admit him to high dependency unit for observation for 48 hrs. with high flow oxygen.

If the any of the above is not fulfilled or the Technique is failed, we have to go chest drain.

Do you understand so far?

Do you have any question regarding the plural aspiration?

Thank you

Dr Manvan Kaur

Pleural aspiration - Fluid

Indication

- If the patient having symptoms
- If patient having no symptoms but patient having exudate.
    - This done by first taking a plural tap with a syringe and send to labs and after confirmation - can continue with aspiration

Contraindication

- Infection at the site of the procedure
- Any bleeding disorders

Technique

Equipment needed

- Iodine, Sterile drape, 20ml syringe for local anesthesia, introducer needle with syringe, 3 way tap and drainage tubing adaptor, cotton gauze swab, dressing, lignocaine

Landmarks

- 7 - 9 rib space midline to posterior axillary line and the midline of the back.
- We can mark the area with USS or with examination of the chest.

Technique

- First Using aseptic technique infiltrate the area with lignocaine.
- Then drape with sterile drape with a hole
- Then insert 16/18 gage cannula attached to 10ml syringe with sterile normal saline.
- While inserting the cannula we should withdraw the needle to see any fluid inside the syringe and it confirms the correct placement.
- Then remove the syringe and the needle and attach the cannula to a short connecting piece of tubing and 3-way connector.
- Aspirate via a 50 ml syringe, turn the tap and dispose the fluid into the container.
- You can send sample from this for assessment of WBC counts, protein, lactate levels and for culture.
- Turn the tap again and aspirate another 50 ml from pleural cavity.
- This can be continued until the patient feels better, or when the patient start coughing, or maximum of 1.5 liters We can aspirate minimum 500ml.
- After successful aspiration we can remove the cannula and close the area with sterile dressing.

Dr Marwan Kabir

Assessment of success

After aspiration we can examine the patient's vitals and examine chest and auscultate. The we can do a chest X - ray.

After the procedure we can keep him in the observation room for 4 hrs. with high flow oxygen and discharge. We will give him and appointment in the chest clinic in 1 week for pleural aspiration results.

Defibrillator

Synchronized cardioversion

Assess ABC and 1st can have VT without any complications.

This Patient is having stable ventricular tachycardia. Please call cardiologist and this patient any time may go in to unstable. So may need defibrillation and conscious sedition. Please prepare the defibrillator. Please call the anesthetist. Meanwhile I will give amiodarone 300mg over 60 min, and prepare midazolam and fentanyl for conscious sedation. While the amiodarone is going on, I will complete my assessment

Complete D, E and hand over the patient to cardiologist.

Then reassess the patient.

If unstable VT - Patient needs synchronized defibrillation

- Please Call cardiologist and anesthetist for conscious sedation
- Patient is conscious and take consent for sedation
- Give IV midazolam 0.1mg/kg and fentanyl 1mcg/kg
- I will switch on the defibrillator and on the synchronized mode. Then charge the defibrillator to 120 J. Everybody clear, I am clear, oxygen away. Shocking, Shock given
- Then reassess. If still the VT is seen then you can give 140J and 3rd shock 150 J. Even then the VT is there, you can amiodaron 300mg over 20 min.

For Unstable narrow complex Tachycardia - Can Give 70 J then 100 J and then 120 J synchronized DC shock

For Cardiac arrest

- For shockable rhythm (VF / Pulseless VT) - Unsynchronized shock 150J
- After 3rd shock - give adrenalin 1mg IV 1: 10,000 and amiodarone 300mg bolus.
- Then after 5th shock give 150mg bolus of amiodarone.

For bradycardia

Dilawar Kabir

- If Unstable or having risk of asystole - Please call the cardiologist. Give atropine 0.5mg IV, and we can repeat every 5 min up to maximum 3mg if the bradycardia persists. This patient may need pacing. So please call the anesthetist for conscious sedation. Place self-adhesive pads anterior and lateral position
- Anterior is 2nd and 3rd intercostal space and right of sternum below clavicle
- Lateral placed 4th or 5th intercostal space mid axillary line.
- While giving atropine I will assess the other system.
- Assess the D and E and hand over to Cardiologist. Then reassess the patient. In C Look for HR.

If still bradycardia

- Please give isoprenaline 5mcg/min IV

If no response Is the cardiologist here. Ok we will go transcutaneous pacing. as patient is conscious, I will need to take consent. Sir In order to give you pacing we need to sedate you so that you will not be uncomfortable. Is that ok for you?

- Then please give midazolam 0.1mg/kg and fentanyl 1mcg/kg.
- Now I will on the pacing machine and turn to pacing mode. Then I will put the amplitude in to 30MA and the HR into 70bpm. Then I will on the pacing and look for response.
- Still there is no electrical capture. I will increase the amplitude in to 40mA. Still no electrical capture.
- Now 50mA - no capture
- Now 60mA - yes, we have an electrical capture now. Let's see for mechanical capture. Look and feel for pulse. Is there a pulse?
- Ok guys we have successfully done the pacing. Now I will reassess the patient. ABCDE. I will hand over the patient to cardiologist for permanent pacing.

Non-Invasive ventilation

Learning objectives

- Indication/ contraindications
- Complications/ Precautions
- Technique
- Assessment of success
- Initial setting of NIV

Advantages

- Decrease the intubation rate
- Reduce the rate of work of breathing
- Decrease the mortality

Dr Nawan Kabir

Indications

- Acute exacerbation of COPD
- Cardiogenic pulmonary oedema

Absolute contraindications

- Lack of spontaneous breathing
- Gasping
- Partial or complete airway blocking
- Aspiration, GI bleeding or lieus

Relative contraindications

- Coma
- Agitations
- Acidosis (PH < 7.1)
- Hemodynamically unstable (cardiogenic shock, MI)

Side effects

- Excessive leakage
- Patient discomfort as a result of asynchrony
- Gastric distension and increased risk of aspiration
- Facial skin necrosis
- Eye irritation

NIV Face mask

- Chin cup for stability and comfort
- Metro seal between mask, tube and seal
- 5 adjustment points for anatomical position
- Swivel elbow connector with CPAP and BPAP
- Deep sealing flange on the nose bridge
- Low dead space mask aids CO2 clearance

Now I will teach you how to measure the size of the face mask.

- We have measuring card for this and it measure the length between the canthal fold of the eye and just lower to the lower lip where we can get the sizes as small, medium and large.

Modes of ventilation

Adjustment is based on Minute ventilation (TV x RR), Pulse oximetry, Capnography ETCO2 and ABG

- IPPV - Intermittent positive pressure ventilation
- SIMV - Synchronized intermittent mandatory ventilation
- CPAP - Continuous positive airway pressure - Respiratory failure type 1 (low PaO2)

Dr Marwan Kabir

- BIPAP - Bilevel positive airway pressure - Respiratory failure type 2 (low PaO2 and high PCO2)
- ASB - Assisted spontaneous breathing

TV (Tidal volume) = 6 - 8ml/kg predicted body weight

RR = 12 - 20 bpm

Minute ventilation = TV x RR

P max = Peak Inspiratory pressure

I: E = 1: 4

FIO2 maintains Spo2 (88 - 92%)

BIPAP:

- IPAP = 10cm H2O
- EPAP = 5cm H2O

If elevated ETCO2 / PaCO2 - We should increase the minute ventilation. First increase the RR maximum up to 20 bpm and the increase the TV.

Confirmation of success

It is assessed by clinical improvement of the patient and chest examination findings

We should do an ABG after 1 hr. of inserting the NIV to assess the success. If not, successful patient needs to get intubated. If no improvement with NIV patient needs Invasive ventilation.

Discharge the patient

After successful application of NIV, we should move the patient to the high dependency area for observation.

Ascitic drainage

Learning objectives

Indications

- Symptomatic ascites

Contraindications

- Infection at the site of insertion
- Bleeding disorder

Dr Marwan Kabir

Complications

- Pain
- Infection
- Abdominal organ injury

Technique

First, we should take a proper history and examine the general and abdominal examination. We should look for percussion and look for the maximum level of the fluid and we can mark with USS.

Equipment

- Iodine, sterile drape, 20cm syringe for local anesthesia, introducer needle with syringe, 3way tap and drainage tubing adaptor, cotton gauze swab, dressing, lignocaine 1%.

Land mark

- If midline - 2 cm below umbilicus or
- Lateral - 2 cm superior medial to the anterior superior iliac spine

Procedure

First, we should wash our hand and wear our PPE

- Using aseptic Technique, Z - technique infiltrate few ml of lignocaine subcutaneously
    - Pull the skin taught and insert the needle perpendicular to the skin
    - Release the skin and advance the needle obliquely in the subcutaneous tissue
    - Advance the needle perpendicular to the abdominal wall in the peritoneal tissue
    - This prevent persistent fluid leakage from the site of insertion.
- Insert 16/18 gage cannula attached to 10ml syringe with sterile normal saline at the insertion point.
- Aspiration of peritoneal fluid confirms the placement, remove the needle and the syringe
- Attach the cannula to a short connecting piece of tubing and a 3-way connector.
- Aspirate 50ml from the abdominal cavity and dispose to a bottle by controlling the 3-way connector
- Like this we can aspirate until the patient improves
- After that we can remove the cannula and apply sterile dressing

Confirmation of success

- Clinical improvement
- Examination of the abdomen look, feel and tap

Discharge plan

Dr Nawan Kabir

- Observe for 4 hrs. in the ED and discharge and giving an appointment at hepatic clinic in 1-week time to review the ascitic fluid results.

Dr Marwan Kabir

Procedural Skills - 2

Lumbar puncture

Indications

- Obtain CSF for investigation or measure the CSF opening pressure
- In Guillain-Barre syndrome to measure high protein and normal WBC

Contraindications

- Infection at the site of needle insertion
- Coagulopathy
- Raised ICP

Complications

- Post-procedure headache, nausea, vomiting
- Infection
- Hematoma
- Damage to spinal cords and spinal nerves

How to prevent the post procedure headache

- By taking the smallest spinal needle
- Use the pencil tip spinal needle
- Keep in the stylet inside the needle while inserting the spinal needle

Technique

- First, explain the procedure and Take consent from the patient.

" As you know head imaging CT scan brain was normal, but it's not enough, we need to do a procedure called Lumbar puncture post CT after 12hrs into your back to take sample to exclude brain bleeding. I have been asked to take some data from you, examine you and insert a thin needle into your back. Would that be ok for you?'

Take history and examine for central nervous system to make sure there is no CI.

Dr Marwan Kabir

- Then gather all the equipment
    - Sterile swab
    - Needle and syringe for local anesthesia
    - Spinal needle - hear if we take the pencil pointed spinal needle - we can prevent post LP headache in patients.
    - Manometer components
    - Sterile drape
    - Sterile gauze
    - Universal containers
    - Glucose estimation tube
    - Procedural tray
- Positioning the patient
    - Ask the patient to lateral decubitus position and keep the head flexed and knee and hip flexed and kept in knee chest position. Ask the patient to arch the back towards you.
- Land mark
    - It is done at the level of L4 and L5 or L3 and L4. To mark the L4 - L5 space, a line drawn connecting the superior border of the iliac crest and marked the space between the space between the spinous process.
- Procedure
    - We will clean the area and drape with sterile gown, only exposing the procedure area.
    - Then infiltrate the lignocaine maximum 3mg/kg and infiltrate the deeper tissue
    - Then insert the spinal needle into the midline previously marked. Hold the needle parallel to the bed and advance it towards the umbilicus. Remove the stylet periodically to check for CSF. Insert the needle 10 degree angle to the vertical line
    - The needle is inserted through skin, subcutaneous tissue, supraspinous ligament, interspinous ligament, ligamentum flavum, extradural space, dura, subarachnoid space. When you insert the needle, you will feel 2 ‘pop’s when you pass the supraspinous ligament and ligamentum flavum.

Dr Marwan Kabir

- When the CSF is flowing through the needle hub, then the subarachnoid space has been reached.
- Then attach the manometer to check for opening pressure. The manometer should be parallel to the spinal needle insertion
- Collect CSF samples in 5 bottles each 8 drops per tube for the following
    - Fluoride oxalate tube for glucose
    - Microscopy for count
    - Biochemistry for protein
    - Microbiology for gram stain
    - Biochemistry for xanthochromia
- After the procedure replace the stylet before removing the needle
- Apply a sterile dressing

After the procedure the patient is kept lying down for 2 hrs. and kept under monitoring. Can go home on the same day id the patient feels well.

Procedural sedation and Shoulder dislocation

Introduction

Procedural sedation is an important topic in ED practice. Do you want to learn procedural sedation only or with reduction technique?

How much do you know about procedural sedation and reduction technique? Anything specific you want to learn?

Is the patient stable? Any doctor care about the patient?

Learning Objectives

I will teach you the following

- Indications
- Contraindications
- Technique
- Assessment of success

Dr Marwan Kabir

And at the end I will give you good websites and videos to guide you more in teaching and procedural sedation with reduction technique. If you have any questions you can ask me anytime.

Procedural sedation indications

Short duration of painful procedures in the emergency setting.

- Reduction of fractures (e.g.: Colles' or mid forearm) or dislocations (e.g.: ankle or shoulder)
- Suturing of simple wounds in children
- Wound exploration and debridement before theatre
- Incisions and drainage of superficial abscess

Procedural sedation contraindications:

- Procedures that need theaters
- High anesthetic risk, difficult airway - (LEMON), patient not fasting
- Children less than 1 yr. of age
- Inadequate staff, monitoring, unfamiliar drugs

Procedural sedation complications

- Deeper sedations - respiratory arrest
- Inadequate sedation
- Hypoxia and hypercarbia
- Airway obstruction due to sedation, loss of airway tone or laryngospasm
- Vomiting and aspiration
- Post - sedation emergency phenomenon which may occur with drugs such as ketamine
- Failure of the procedure

Procedure

First take AMPLE history and examination for LEMON to exclude contraindication.

This will give you idea for ASA classification category of patient. Do you know what it is meant by LEMON category – To asses the airway difficulty

L – Look externally – For short neck, Loose teeth, Significant malocclusion

E – Evaluate – 3:3:2 – 3 finger between incisors, 3 finger between mentum to hyoid bone, distance between hyoid to the thyroid

Dr Marwan Kabir

M – MALLAMPATI – Inside the mouth, Class – 1,2,3,4

O – Obstruction or obesity – epiglottitis, head and neck cancer, Ludwig's angina, neck hematomas, FB, Thermal injury

N – Neck mobility – Neck extension – sniffing position to view the larynx, compromised in cervical collar

This procedure has some contraindications and I would like to ask you some questions from you

Procedural sedation

We will wash our hands and wear or PPE. Please call the anesthetist for sedation and airway management.

Please prepare according his weight - midazolam 0.1mg/kg, Fentanyl - 1mcg/kg and prepare airway equipment, connect all monitors (BP, ECG, Pulse oximetry and tidal CO2) Please give high flow oxygen, Iv line and fluids

Technique for Reduction - anterior shoulder dislocation

Kocher's Method

- Traction with external rotation
- Abduction
- Adduction
- Internal rotation

Milch maneuver

- Patient supine
- Steady downward traction applied at elbow
- Combined with slow gradual external rotation and abduction of limb

Post procedure Assessment

Do you feel better now? Can you move your limb?

I need to repeat the examination and x-ray.

You need observation and monitoring in the recovery room, you be discharged once your consciousness level and vitals return to normal. You should not have any pain, nausea, vomiting or breathing problem and you would not be able to drive, would that be ok with you?

Also, you should not sign any important documents today as your judgment can be affected due to sedation and tomorrow you will be completely recovered. Is that ok with you?

Dr Marwan Kabir

End

Do you understand what I have told you to be sure that I correctly explained to you?

Would our management plane be ok with you?

Do you have any further questions?

Thank you

Procedural Sedation Consent from The Patient

Introduction and consent from the patient

Good morning, I am Dr. Marwan, ED registrar, May I know your name and age please?

Nice to meet you Mr..... I have been informed that you have left shoulder pain. Is that right?

I am sorry to hear that; do you still have pain?

I am sorry to tell you that shoulder imaging shows dislocation. I have been asked to take data from you, examine you and reduce your shoulder to normal position. I will explain everything for you, would it be ok with you?

Did you do this procedure before?

Anyone attend with you?

Would you mind if a nurse attends with us?

I need to check Vital signs

I will explain you the indication and contraindications and complications due to this conscious sedation. Ok?

Examination

I am sorry to tell you that from the imaging done shows that your left shoulder is dislocated to anterior site. We are going to put it to the normal position. But, putting it to the normal place is a painful procedure. So, for that we will do what is called conscious sedation. In this procedure we will give you medications which will your pain go away and you will be awake. You will maintain your airway and breath on own and you will not feel pain. Did you Understand so far?

For this procedure there are some contraindications. So, to exclude them I will ask you some questions. Also, I need to check your mouth for assessment for airway assessment called LEMON classification. Would that be OK?

Dr Marwan Kabir

Brief history:

AMPLE

A: Allergy

M: Medications

P: Past medical condition - For ASA classifications

L: Last ate meal

E: Event - Can you tell me more about this shoulder pain

So, From the data you gave me and the examination finding you don't have any contraindication for the sedation and procedure.

This sedation procedure has some complications where you will be some times over sedated where you will not be able to maintain your airway and drop in your blood pressure. Some times the sedation will not be adequate as you will feel the pain.

Don't worry, we are well trained to avoid this complication. In order to tackle them we will have minimum 3 staff assigned for this procedure where one will maintain your airway and other one will maintain your circulation. You will be under monitoring all the time until the procedure finishes and if any complication arises, we will take immediate measures like putting an airway and giving you fluids and medications to maintain your BP. Do you follow me?

So, after the procedure you will be kept in the recovery area for 4 hrs. and monitored until you recover fully from your sedation. We will discharge you when you are fully awake, and your vitals are normal and you can walk. But you will not be able to drive for 24 hrs. and someone should come and pick you up from the hospital. Also, you should not sign any important documents for next 24 hrs. as you are not fully awake and the document will not be valued.

Did you understand so far.?

Do you want me to repeat anything so far?

Do have any questions?

Would that be ok to do the procedure? Can you sign for consent?

Dr Manveer Kaur

Knee Aspiration

Learning objectives

- Indications
- Contraindications
- Complications
- Post procedure procedural assessment

Indications

- Diagnostic: Exclude septic arthritis
- Therapeutic: Relief pain and swelling

Contraindications

- Cellulitis at proposed needle insertion site
- Coagulopathy
- Knee replacement aspiration should be in theater

Complications

- Infection
- Hematoma
- Damage to articular cartilage

Introduction to patient

Examination

- AMPLE history
- Explain the procedure.
    - Procedure has some contraindications. Let me ask you some data from you. (Ask AMPLE history). I will check if there is any infection at the site of the insertion of the needle.

Techniques

Let us wash our hands and wear our PPE.

Dr Marwan Kabir

Let’s gather the equipment

- Cleaning swab
- Needle and syringe for local anesthetic 25 gage (small one)
- Needle and syringe for aspiration 22 gage (big one)
- Sterile drape
- Sterile gauze
- Universal container
- Procedural tray

Land mark

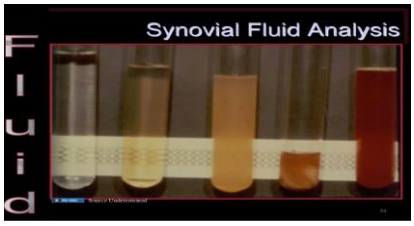
- 2 cm lateral to the lateral border of the patella

Technique

- First keep the knee in extended position and palpate the patella and do patella tap for confirm the effusion
- Mark 2 cm lateral to the lateral border of the patella
- Clean the skin with sterile drape
- Keep the knee slightly flexed supported by a pillow underneath
- Then clean the area with iodine and drape with sterile drape exposing the insertions site.
- Inject local anesthesia with smaller needle to the skin and subcutaneous tissue
- Insert the larger needle at this point direct it downward and medially, below the surface of the patella
- Once in the joint there may be palpable 'give', and also a visible flashback in the hub of the needle
- At this point aspirate as much as fluid as possible. In case of large effusion, leave the needle in the place once 20ml is aspirated and then use another empty syringe to continue aspirating.
- Milking the fluid downward towards the needle helps o aspirate the entire joint cavity.
- Send the fluid for cytology, gram satin, crystals and culture.

Dr Marwan Kabir

Components of synovial fluid

- Gross appearance 

    - Normal - clear
    - Non inflammatory - mild yellow fluid (osteoarthritis)
    - Inflammatory - dark orange (Rheumatoid arthritis)
    - Septic – pus colored (gonococcal septic arthritis)
    - Hemorrhagic (red colored)
- Microscopic examinations
    - WBC and deferential
    - Crystals
- Gram stain
- Culture

After the procedure close the aspirated sited with sterile gauze and apply plaster.

After the procedure patient is kept for 2 hrs. for observation and monitoring and discharged. Asked to come to Orthopedic OPD clinic for knee aspiration results in 1-week time.

Back Slab Application

In exam will come as demonstration. So there will be a nurse and a actor and we should do the procedure in the patient.

Indication

- Temporarily immobilize a part of a limb following an injury
- Provide temporary immobilization until definitive injury

Back slab basic principles

- Adequate analgesia
- Remove any rings/ circumferential jewelry

Dr Marwan Kabir

- Be conscious of exposed edges of the plaster cast rubbing at the end of the edges and in the thumb web spaces
- Use only warm but never hot water for wetting the plaster bandages as it will heat up further when setting
- Squeezing the plaster bandages excessively removes the plaster and weakens the cast.
- Always smooth put the plaster with the palm of your hand as any irregular dents left by your fingers can cause pressure sores on the underlying skin
- Ensure no circumferential layers of the cast are applied too tightly.
- Always provide verbal and written advice.

Contraindications

- Open fracture
- Comminuted fracture
- Nerve or vessels problem
- Compartment syndrome

Complications

- Compartment syndrome after few days
- Malunion of the bone

Equipment

- Stockinet
- Plaster bandage
- Padding
- Bandage
- Warm water

Technique

Wash our hands and wear PPE

Positioning of the forearm in wrist fracture

- Forearm should be pronated and wrist approximately 20 degrees of dorsiflexion and 20 degrees ulna deviated

Dr Marwan Kabir

Landmark for wrist fracture

- Back slab extends 5cm distal to the olecranon to level just proximal to the metacarpophalangeal joint (knuckles on the distal surface of the hand.
- Cut a piece of stockinette bandage approximately 8 cm longer from the olecranon and 5cm longer from the metacarpophalangeal joint. Slide this into the forearm. These ends will ultimately be folded back over the plaster bandage to cover its rough edge. Cut a hole in it for the thumb.
- Starting at either end wrap the limb with single layer of padding including the thumb's web space but not the thumb.
- Wrap the padding overlapping on the other about 50% of the previously wrapped padding
- For the average adult use 6 – 8 layers of 15 cm wide plaster bandage cut to the above length.
- Dip the plaster bandage into water, gently squeeze some of the water out of the bandage and then apply it to the area measured on the dorsal aspect of the forearm.
- Gently smooth the plaster bandage on to the limb to bond the layers together.
- Roll the extra centimeters of the stockinette back over the plaster ends.
- Wrap a bandage around the limb and plaster back slab to secure it in place. Secure the bandage in place with tape.
- The fingers should be free to move fully at the metacarpophalangeal joints.

After the procedure

- Ask to move the fingers freely and ask for any pain or any numbness in the finger. Asses the distal pulses.
- Ask to review any time if there is any pain while moving the finger or any swelling of the fingers.
- If no problem asks to come to the fracture clinic

The Traction Splint Application – Thomas Splint

Indication

- Proximal femur fracture
- Femur shaft fracture

Dr Marwan Kabir

This reduce the pain and reduce the bleeding

Contraindications

- Distal Femur fracture near to the knee
- Supracondylar fractures

Complications

- Malunion
- Compartment syndrome
- Discomfort to patient

Good morning, I am Dr. Marwan, ED registrar, May I Know your name and level please?

Nice to meet you. I guess we have a patient to apply for traction splint. Is that correct?

Ok. We will go to him now. Can you prepare the necessary equipment?

Equipment for Thomas splint

- Hip ring
- Metal frame
- Frame padding
- Frame 'Sling' to support leg
- Skin traction with traction cord
- Bandage for skin traction
- Device to tighten traction cord.

I will go to the patient.

Good morning. May I know your name and age please? Nice to meet you.

How can I help you today? Oh, I am sorry to hear that.

Are you in pain now? Do you need any pain killer?

Are you comfortable now?

Dr Marwan Kabir

I have bee told that from your imaging of your leg, there is a fracture in the middle of the thigh bone. So I have asked to put on a device called a traction splint. This will help to reduce the bleeding and pain in the site of the fracture. Is that ok for you?

Be for applying I have to examine you and feel for the nerves of the leg to see any contraindications. From the examination findings you don't have any compound fracture, pelvis fracture or any nerve or any vessel problem.

So, after this procedure you might feel some pain swelling after the procedure. So, I will give you pain killers and some printed leaflets how to tackle them. Is that ok for you?

Ok now I will prepare the traction splint.

Wash or hands and wear our PPE

- Expose the entire leg. We will give femoral nerve block for pain killer.
- First gather the traction splint. Attach the hip ring to the metal ring. Frame padding and frame slings – 6 slings
- Apply the skin traction
- Secure skin traction to the leg with skin traction bandage.
- Lifting the leg to place the splint
- Apply hip sling and 2 above knee slings and 2 below knee sling.
- Attach traction cord to the splint.
- Tight the traction cord by applying the tongue depressor in between the traction cord and tight It by twisting motion. Lock it in the place.

Post procedure

How do you feel now? Feeling better?

I will examine your legs and nerves and vessels. Can you move your toes? Is it painful? I will assess the CRFT and will do a x-ray. I will send you to the orthopedic ward for further evaluation and management and definitive management after discussing with them

Dr Marwan Kabir

THOMAS SPLINT

EQUIPMENT

Appropriately sized thomas splint (see step 1)
Tubigrip
SoffBan
Large Gauze x2
Tensoplast Skin Traction
Two tongue depressors wrapped in fabric tape
Clear medical tape
Razor
Scissors
Measuring Tape

Step 1 Measure thigh diameter and select appropriately fitting thomas splint

Step 2 Cut appropriate length of tubigrip and place over splint as shown

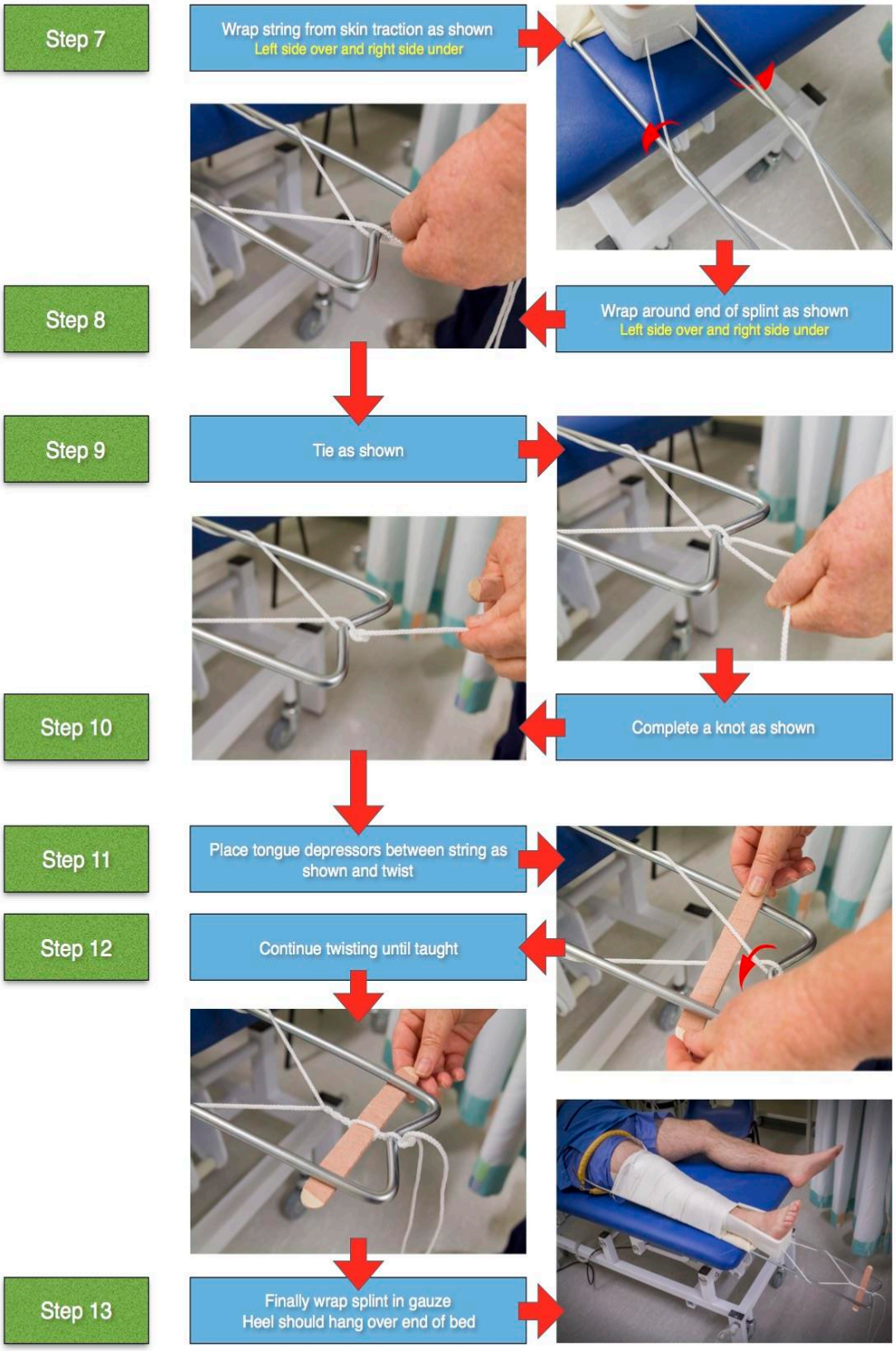
Step 3 Apply skin traction as shown (peel tape and attach to skin) - user razor if needed

Step 4 Secure traction by wrapping with bandage included and tape to secure

Step 5 Layer some soffban as shown

Step 6 Place this padding behind knee for support

GRI ED 2017


Step 7
Wrap string from skin traction as shown
Left side over and right side under
Step 8
Wrap around end of splint as shown
Left side over and right side under
Step 9
Tie as shown
Step 10
Complete a knot as shown
Step 11
Place tongue depressors between string as shown and twist
Step 12
Continue twisting until taught
Step 13
Finally wrap splint in gauze
Heel should hang over end of bed
GRI ED 2017

Arterial Cannulations

Teaching and demonstration of the procedure

Indications

- Monitoring – invasive monitoring of blood pressure
- Diagnostic – repeat blood sampling (for blood gas analysis)

Contraindications

- Absent pulse or inadequate collateral circulation - Allen's test
- Full thickness burn

Complications

- Bleeding
- Hematoma
- Air embolism

Common sites

- Radial artery
- Ulnar artery
- Dorsalis pedis artery
- Brachial artery
- Femoral artery

Examination

Done in the non-dominant hand. Test for Allen's test and check for neurovascular status of the hand

Equipment

- Needle
- Guidewire
- Dilator – for bigger arteries
- Syringe
- Catheter

Dr Marwan Kabir

Technique

- Do Allen's Test first
- Immobilize the hand in and wrist in mild dorsiflexion on a padded arm board. Prepare the skin with antiseptic, anesthetic and apply a sterile drape
- Pull the guidewire and insert in the needle, approximately 2 cm proximal to the radial styloid process lateral to the flexure carpi radialis
- Advance the needle into the artery at 45-degree angle to the skin. Confirm arterial puncture by observing a flash into the needle hub.
- After inserting the needle to the artery, remove the needle keeping the guidewire and advance the guide wire until the mark placed in the guidewire.
- Then insert the catheter threading in to the guidewire.
- Then after placing the catheter, remove the guidewire.
- Suture the catheter with superficial skin to secure in place and apply sterile dressing.
- Attach the catheter to the pressure transducer and automatic flushing system. – controls fluid coming the patient and measure the blood pressure.
- Then connect to pressure bag – pressure in the pressure bag is 300mmHg
- 3-way connecter should be in the same level as the artery and level of the heart.
- How to stop fluid to the patient – adjust the 3 way to 0 pressure in the atmosphere and put 0 pressure in the monitor.

After the procedure

Check comfortability of the patient and do a neurovascular examination again in the hand. Then confirm the placement by waveform pressure analysis and blood gasses.

Interosseous needle insertion

Indication

- In emergency setup when there is no IV excess like extreme dehydration, cardiac arrest

Contraindications

- Infection at the site of insertion
- Lower limb deformity

Dr Manvan Kaur

- Fracture in the limb

Complications

- Fracture to the limb
- Hematoma formation
- Infection – osteomyelitis
- Bleeding

How to avoid

- Use aseptic technique
- Proper technique

Procedure

Preparation of patient

- First asses the neurovascular status of the status of the limb
- Expose the limb fully

Preparation of our self

- Wash our hands and wear sterile gloves and PPE

Equipment

- Battery operated device to inject the cannula
- Deferent sized of IO needles – big one for adults and small one for children
- Collecting tube with syringe
- Lidocaine
- Sterile gauze
- Drape and dressing

Technique

- Land mark
    - In adult commonest site – 2cm inferomedial to the tibial tuberosity
    - In children – 2cm above the medial malleolus of the tibia

Dr Marwan Kabir

- First clean the area and land mark and drape with sterile drape
- Infiltrate the insertion site with lidocaine 2ml
- Wait for 5min until fully effect
- Assemble the needle to the gun
- Then inject the cannula with the needle to the bone perpendicular to bone with the device.
- Insert in until feeling pf giving in and the last mark in the needle should be just above the skin surface.
- Then remove the needle and keep the cannula
- Apply the sterile dressing
- Then connect the connecting tube with the IO cannula and collect 2cc blood and send for assessment – Clearly write that the sample is from IO access
- Then inject LA – 2% lidocaine 2cc over 2 min 2 times.
- Then can use the IV access for administration of medication and IV fluids
- After the procedure we have to assess the lower limb neurovascular status of the lower limb

Post procedure

We can keep the IO access for maximum 24 hrs or until when there is a definitive IV access.

Lab analysis

- Statistically significant correlation with venous blood
    - Chloride
    - BUN
    - Hemoglobin
    - Glucose
    - Calcium
    - Creatinine
    - Hematocrit
- WBC is higher
- Blood gases - IO values were between arterial and venous

Dr Marwan Kabir

Male catherization

Types of catheter

- Two-way catheter
- Three-way catheter – for irrigation

Indication

- Therapeutic - Acute urine retention
- Monitoring – For measurement of fluid balance
- Irrigation – Bleeding, Infection

Contraindication

- Urethral injury
- Obstruction In the urethra

Complications

- Urethral injury
- Infection

Technique

- Equipment
    - Sterile catheter
    - Urine collecting bag with tube
    - Cleaning solution
    - Sterile gauze
    - 2 sterile gloves
    - Drapes
    - Kidney tray
- Wash hands and wear PPE
- Prepare the patient
- Adequate exposure ensuring the dignity of the patient
- Wear one gloves and clean the penis and surrounding structures with cleaning solution
- Then dispose the gloves and wash the hand again and wear the other sterile gloves.

Dr Marwan Kabir

- Then hold the penis with and sterile gauze and retract the glans of the penis and clean the urethral meatus from tip to the outwards.
- Keep a tray below the penis to collect if there is any urine dripping
- Take 3cc of local anesthesia gel to a syringe and inject through the glans which will cause lubrication and analgesia and can assess if there is any obstruction.
- Take the correct sized urine catheter and check for the expiry date
- Then remove the tip cover of the catheter. Do not touch the tip with your hand.
- Then with your non dominant hand while holding the penis insert the catheter gently through the tip.
- If you feel any resistance or if you notice any bleeding through the tip, stop the procedure and withdraw the catheter and call the urologist for further evaluation
- Insert the catheter fully in to the urethra until the tip is seen out. Then inflate the catheter bulb with 10cc sterile normal saline.
- Then gently pull back the catheter until it is settled.
- Then remove all the equipment and dispose appropriately and close the exposed area of the patient.
- Then attach the urine collector bag with the output site. Keep the catheter bag below the level of the bladder either can tie it to the patient thigh or can attach to the side of the bed.

Arm Slings

Types of arm sling

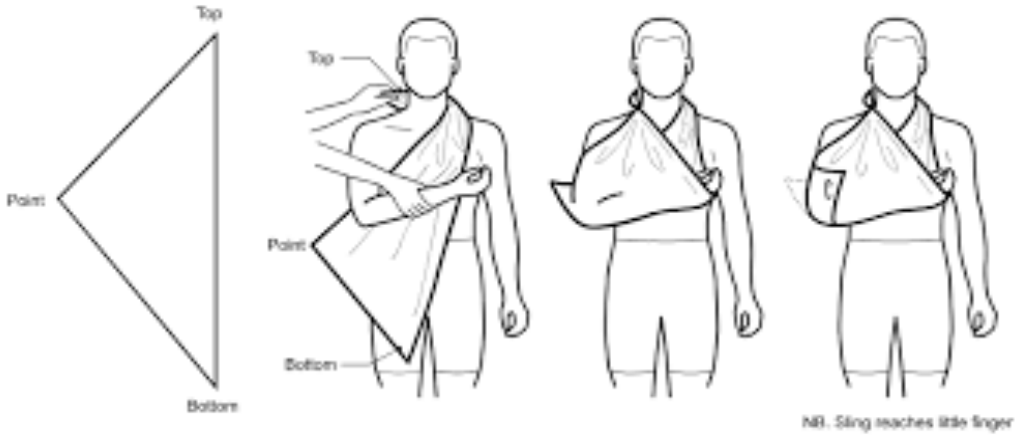
- Broad arm slings
- High arm slings
- Collar and cuff
- Stockinette high arm sling

First teach how to do the sling types and what are the indications and contraindications

Indications and how to Apply

Dr Marwan Kabir

Broad arm sling



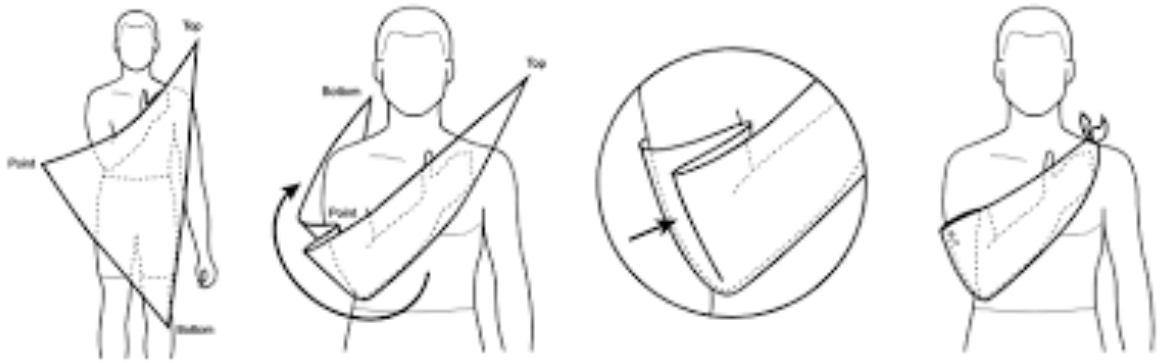
Indications

- Act as support and provides elevation to prevent swelling for arm injuries and lacerations
- Temporary elevation

How to apply

- Place arm across the body slightly elevated and below the shoulder level.
- Lay the sling under the arm as per triangular bandage rules
- Bring over the arm and around the neck

High arm sling



How to apply

- Place the arm with finger tips touching the opposite shoulder.
- Lay sling over the arm, as par triangular bandage rules
- Tuck under the elbow and bring the fabric across the back

- Tie across the back
- Apply safety pin to the elbow to secure

Indications

- High elevation for severely swollen extremities and active bleeding
- Temporary high elevation – infection to hand/arm, wound that are risk of further bleeding (to prevent hematoma)

Stockinette High arm Sling

How to apply

- Cut a small hole in center of arm width piece of stockinette.
- Place arm through hole and tie at the back. Ensure the fingers are not restricted

Indications

- Non compliance or inability to cope with the triangular bandage high arm sling

Collar and Cuff

Dr Marwan Kabir

How to Apply

- Put as a color around the neck and fitted at the wrist and secured with plastic ties and secure down with tape to avoid scratching the patient.

Indications

- Fracture of the humerus – head / neck fractures
- Radial head fracture of the elbow
- Long term comfortable sling opposed to triangular sling

Wound suturing

Assessment of the wound

History

- Mechanism - What is the cause of the wound and the mechanism
- Site
- Time
- Place
- AMPLE history and immunization status
- Occupation and hand dominance – What is your dominant hand and what do you do for your living?

Examination

Look

- Wound measurement – length, width, depth of wound
- Wound bed – Tissue type visible (e.g. necrotic, granulation)
- Evidence of contamination, non-viable tissues or foreign bodies
- Condition of surrounding skin
- Signs of infection
- Involvement of deep structures (e.g. muscle, nerves)

Dr Marwan Kabir

- Type and amount of exudate if present
- Odor if present
- Swab if taken

Feel

- Test sensation
- Current pain status

Move

- Test muscle and tendon function whilst observing the wound

Procedure

Equipment

- Needle holder
- Forceps
- Syringe
- Absorbable black silk with cutting and curved needle
- Needle
- Non

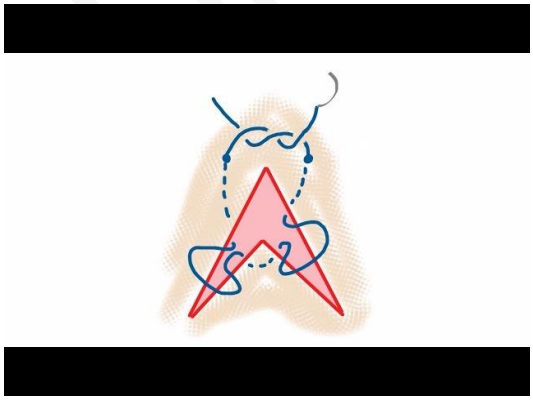
Control the bleeding with elevating the limb

Pain killers

Take history and assessment of wound

Ask the nurse to clean the wound inside with normal saline irrigation and surrounding with betadine.

Do the suturing – Interrupted suture and suturing the V shaped wounds



Dr Marwan Kabir

Removal time

- Generally – 7 days
- Facial – 4 – 5 days
- Lower limbs and extensor surfaces of joints – up to 14 days

---

Nerve blocks

Common Indication

- Anaesthetize the specific area and do the procedure like suture removal, FB removal etc

Common contraindications

- Refusal of patient
- Distorted anatomy
- Overlying skin infection
- Allergy to local anesthesia

Complications

- Hematoma
- Infection
- Bleeding
- Vascular injection and causing LA toxicity
- Nerve injury causing neuropraxia or neurolysis

How to prevent the complications

- Should do with the strict aseptic condition
- Do under USS guidance and use nerve stimulator
- Use correct dose of the LA
- Reduce the dose in children and extremes of age.

Dr Marwan Kabir

In case if any LA toxicity develops

- Move the patient to monitored area
- Give oxygen
- Give Iv fluid
- If patient collapse - give intralipids and if patient became cardiac arrest – follow ALS guidelines

Types of Nerve blocks

Facial

- Trigeminal
    - Ophthalmic – Frontal nerve – Supraorbital, Suoratrochlear
    - Maxillary – Infraorbital
    - Mandibular – Inferior alveolar (dental nerve) – Mental

Ear

- Above – Auriculotemporal nerve
- Below – Greater auricular nerve, Lesser occipital nerve

Upper limb

- Bier's Block
- Wrist block – Median, Ulnar, Radial
- Hematoma block – Distal forearm fractures
- Digital nerve block

Lower limb

- Facia iliac nerve block (FINB)
- Femoral nerve block (FNB)
- Ankle nerve block

All body

- Regional anesthesia field block (for back abscess)
- Regional anesthesia field block (Wound infiltration for suture)

Dr Marwan Kabir

Supra orbital nerve block

- Type of anesthesia – Lidocaine 3mg/kg
- Area anesthetized – Ipsilateral area from lower eyelid to superior lateral part of the for head and scalp.
- Method – Palpate the supra orbital foramen. It is in between the 1/3rd and 2/3 of the brow and it is in the mid pupillary line. Access patient from the lateral aspect and inject the LA anesthesia

Supra trochlear nerve block

- Area anesthetized – In the medial and superior aspect of the forehead and scalp.
- Method – Advance the needle 1 cm more to anesthetize area. Nerve in the medial part of the eye brow

Inferior orbital nerve block

- Area anesthetized – Area from the below the eye lid to upper lip and lateral part of the nostril and cheek.
- Method
    - Extra oral - In the mid pupillary line 2 cm below the lower eyelid. Inject the LA first perpendicularly and then inferior medially and inferior laterally.
    - Intraoral – Advance the needle in the gingival-buccal sulcus in the space between 2nd and 3rd teeth lateral to midline. Then repeat the same procedure with 3rd and 4th teeth to achieve capital block. Finally inject in the mandibular frenulum.

Mental Nerve block

- Area anesthetized – Area below the lower lip to the chin in the ipsilateral side
- Method –
    - Extra orally – In the mid pupillary line between the lateral fold of the lip and the lower part of the chin, insert the needle perpendicular to the skin and then advance superior medially and superior laterally.
    - Intra orally – Advance towards the mental foramen at the gingival-buccal sulcus in the space between 3rd and 4th teeth lateral to midline and repeat in 4th and 5th teeth.

Dr Manwan Kabir

Dental nerve block

- Area anesthetized – lower mandibular area including the lower lip and chin in the ipsilateral side.
- Method. Palpate the coronoid process with the thumb and identify the pterygomandibular raphe. Inject the LA keeping the needle from the contralateral side molar tooth area and inject the LA midway between the pterygomandibular raphe.

Bier's Block

- Drug Used – Prilocaine dosage 6mg/kg
- Indication
    - For numbing the area involve the area. Used to manipulate and procedures of the wrist and arm. Mainly wrist fractures
- Complication
    - CNS
        - Subjective circumoral paresthesia
        - Yawning, anxiety, Tremor
        - Nausea and vomiting
        - Muscle twitching, Convulsions
        - Coma
    - CVS
        - Pallor, Hypotension, Circulatory collapse
        - Arrhythmias, Bradycardia and asystolic cardiac arrest
        - Methemoglobinemia
- Contraindications
    - Allergy to LA
    - Hypertension > 200mmHg
    - Infection in the limb
    - Lymphoedema
    - Methemoglobinemia

Dr Marwan Kabir

- Peripheral vascular disease
- Sickle cell or trait
- Paget's disease

- Procedure
  - First – Ample History and LEMON examination and consent.
  - Need monitoring of the vital signs
  - Then gather the equipment
    - Need double cuffed tourniquets with pressure cuff.
    - Two IV lines
    - Intralipid for LA toxicity
  - Before the procedure – Check the tourniquet after inflate up to 300mmHg (Maximum Pressure)
  - Then apply the Double cuffed tourniquet with padding.
  - Elevate the injured limb to exsanguinate the limb.
  - Inflate the both cuff pressure to 100mmHg above the SBP or up to maximum of 300mmHg.
  - Then check the distal radial pulse and if it is absent, then the cuff is working appropriately.
  - Record the time of inflation
  - Inject the 0.5% plain prilocaine prepared according to patient's weight, slowly and record the time of injection.
  - Warn the patient that they will feel cold/hot sensation and mottled appearance of the arm.
  - Remove the cannula in the injured arm and after 10 min of injection proceed with the purposed procedure.
  - Monitor vital while doing the procedure. And Tourniquet must be under inspection all the time.
  - Cuff can be inflated minimum of 20min and maximum of 45 min. So, patient should be monitored in the recovery area following deflation of the cuff

Dr Marwan Kabir

- After the procedure deflate the cuff observing the patient and monitor. Record the time of deflation
- Check limb circulation prior to discharge and appropriate follow up given and documentation done.

Wrist block

Three types involving median, ulnar and radial nerve and lidocaine is used as LA.

Area supplied

- Radial nerve – Dorsum of the hand 3 and 1/2 fingers
- Ulnar nerve – Medial 1 and 1/2 fingers palmer and dorsal aspect
- Median nerve – lateral 3 and 1/2 fingers palmer aspect

Land mark

Ask the patient to make a fist and see and locate the tendons – flexure carpi radialis, palmaris longus, flexure carpi ulnaris

Radial nerve

- Should anaesthetize the deep and the superficial branch
- Deep branch - Along the radial artery's lateral border and lateral to flexure carpi radialis tendon 2cm proximal to the 2nd crease of the wrist - inject 2 – 5 ml superficially and deep.
- Superficial branch – 2 cm proximal to the 2nd crease in the dorsal aspect and proximal to radial styloid process. (Anatomical snuff box bounded by the extensor policis brevis and extensor policis longus and scaphoid bone of the wrist.) Inject 3 - 5ml superficially.
- (The injection not done in base of the anatomical snuff box as it will anesthetize the distal branch of the superficial radial nerve only)

Median nerve

- 2cm proximal to the wrist flexure crease between the tendons of the flexure palmaris longus and flexure carpi radialis or medial to the flexure carpi radialis and inject 3ml of LA deep.

Ulnar nerve

- Have superficial branch and deep branch
- For deep branch - Just proximal to the ulnar styloid process medial to flexor carpi ulnaris infiltrate 3 – 5 ml of LA proximal to the flexure crease, and infiltrate superficially and deeply

Dr Imran Kabir

- Superficial branch – 2 cm proximal to the ulnar styloid or 2cm proximal to the crease in the dorsal aspect in the medial side and inject 3ml superficially

The LA total dose should not exceed 3mg/kg

Before the procedure – set the nerve stimulator to 1 – 1.2mA and look for muscle twitching for radial, median and ulnar to indicate adequate proximity to the peripheral nerve prior to the injection.

Hematoma block

Local anesthesia used – lidocaine 3mg/kg

Indications

- Injecting anesthesia into the hematoma around fracture site commonly used in closed reduction for Colles' fracture and ankle fracture
- Used in distal limb fractures

Contraindications

- Open fracture

Complications

- Hematoma
- Infection
- Bleeding
- Vascular injection of anesthetic
- Nerve injury including neurapraxia or neurolysis
- LA toxicity
- Allergic reaction to LA

Technique

- Landmark
    - Hematoma between two parts of the fracture bone / Can guide with USS
- Clean the area

Dr Marwan Kabir

- Feel the 2 ends of the fractured bone.
- Inject 3ml of LA with 25 G needle and anesthetize the area superficially.
- Then take a longer needle with 16 G and take 10 of lidocaine and insert in to the middle of the two ends of the fractured bone. Then aspirate to see if there is blood coming. If blood is coming, the needle is in the hematoma. After confirming the placement please inject all the LA into the hematoma.
- This LA will not go into the vessels as the main arteries area located in both sides of the forearm
- After 10 min look for the effect has come and proceed with the local reduction.
- After 5 to 10 min, reassess the neurovascular integrity of the distal part of the limb. Post procedure a back slab is applied. And arm sling. Follow up with fracture clinic.
- Take x-ray to check for post procedure assessment

Digital nerve block

Blocks the 2 palmer and 2 dorsal digital nerves given to anaesthetize the whole finger.

Local anesthesia used is Lidocaine and it should not contain any adrenalin

Technique

- The needle is inserted in between the 2 fingers in the base at the crease of the finger. Needle inserted from the dorsal aspect and first infiltrated 1 ml towards the midline of the finger to anesthetize the dorsal 2 digital nerves.
- Then the needle is advanced deeply to palmer aspect – but should not reach the skin. Then infiltrate another 1ml of local anesthesia.
- The needle is angled toward the midline of the finger.

---

1. Facia Iliaca Nerve block (FINB)

2. Femoral nerve block (FNB)

FINB - Blocks the femoral, lateral cutaneous and obturator nerves. – Blocks a big area and used in hip joint fracture

Dr Marwan Kabir

FNB – Blocks the femoral nerve and anterior part of the thigh and done in fractur reduction in femoral shaft fractures

Anesthesia used – Lidocaine (max 3mg/kg), and Bupivacaine (max 2mg/kg)

Technique

Clean the area and drape and land mark the area

Land mark –

- FNB - 1cm caudal to junction of the lateral 1/3 and medial 2/3 of the line between Anterior superior iliac spine and pubic tubercle
- FINB – 1 cm below inguinal ligament and lateral to the maximum pulsation of the artery (the nerve is just lateral to the femoral artery – from medial to lateral vain, artery and then nerve).

Dosage –

- Lidocaine
    - 3ml for both. Used superficial anesthesia and lasts only 2 – 3hrs with small needle
- Bupivacaine
    - FINB - 40ml (need 2 syringes of 20ml syringe)
    - FNB - 20ml (only one syringe)

Technique

- Landmark the area
- FINB
    - Clean the area
    - Then give 3ml of lidocaine area with small needle to anesthetize the skin and subcutaneous tissue. Wait for 10 min and proceed the next step. (This anesthesia lasts only 2-3hrs)
    - To anaesthetize the deeper tissues we take bupivacaine as the anesthesia lasts for 5hrs.
    - Take 20ml of bupivacaine in a long and blunt needle and insert perpendicularly to the site of land mark.
    - Will feel 2 ‘pops’ – while piercing the facia lata and then the facia iliaca.
    - Should aspirate before infiltrating the LA.

Dr Marwan Kabir

- Then infiltrate the 20 ml of bupivacaine slowly and regularly aspirating 5 ml every time. Then keep the needle and change the syringe with another 20ml of bupivacaine and inject as before.
- Should feel résistance while injecting LA and if not felt, then needle is in the muscle and should withdraw slightly and infiltrate again.
- Larger dose of bupivacaine used here as we anesthetize larger area.
- After injecting remove the needle and close it with a dressing.

- FNB
  - Same approach but the land mark different.
  - Then inject perpendicularly while aspirating and will feel 2 pops
  - Then infiltrate 20ml of bupivacaine slowly while regularly aspirating. After that remove the needle and wait until 20 min to get the effect

---

Ankle nerve block

Anesthetize 5 nerves

- Two-deep nerves
  - Posterior tibial nerve
  - Deep peroneal
- Three-superficial nerves
  - Saphenous nerve
  - Sural
  - Superficial peroneal

Land mark

- Posterior tibial – Posterior to medial malleolus
- Saphenous – Anterior to the medial malleolus
- Sural – Posterior to the lateral malleolus
- Superficial peroneal – Anterior to the lateral malleolus

Dr Marwan Kabir

- Deep peroneal – Between the extensor hallusis longus and extensor digitorum longus (just lateral to the dorsalis pedis artery)

Technique

- Patient lying supine and the ankle in the bed end.
- Ask the patient to extend the toes and palpate the extensor hallusis longus and extensor digitorum longus.
- Then palpate the artery and just lateral to that inject lidocaine 3ml perpendicular to the skin to anesthetize the deep peroneal nerve.
- Then draw an imaginary line between lateral and medial malleolus
- In between the midpoint of the medial malleolus and Achilles tendon inject 3ml lidocaine facing the needle towards the big toe to anesthetize the deep peroneal nerve.
- Other superficial nerves are anesthetized at their respective land marks superficially.
- If we use and tourniquet above the ankle will help to get the maximum effect of the anesthesia around the ankle.
- Total dose of the LA should not exceed 3mg/kg.

Regional anesthesia field block – Back Abscess

Indication

- To numb the area surrounding the abscess to drain the abscess

Contraindication

- Allergy to LA
- If patient needs general anesthesia

Technique

- Mark 2 point the abscess above and below.
- Then inject the 3cm needle fully parallel to the abscess and after aspirating then start to infiltrate
- Infiltrate 1ml and withdraw 1cm and again 1ml and withdraw. After reaching the skin then inject the other side from the point of injection and infiltrate as the same.
- Like this direct the needle anteriorly and posteriorly

Dr Marwan Kabir

- Then again as same in the other point inject as the same
- Then check for numbness.

Wound infiltration

Technique

- Clean the wound from inside with normal saline and outside with iodine.
- Divide the wound to the 2 parts
- Take needle 3cm and syringe 5cm
- Insert the needle 0.5cm /1cm to the edge and parallel to the 1st half of the wound up to middle.
- Then aspirate and then inject 1cm of LA. Then withdraw the needle and then again infiltrate another 1cm and withdraw again and infiltrate another 1cm until the needle is out. Like this 4-times we have to inject.
- Then repeat the same in the other half of the wound and in the other side also.
- After the infiltration wait for 5 min and check with forceps in the edges for proper analgesia
- Then proceed with the procedure

Dr Marwan Kabir

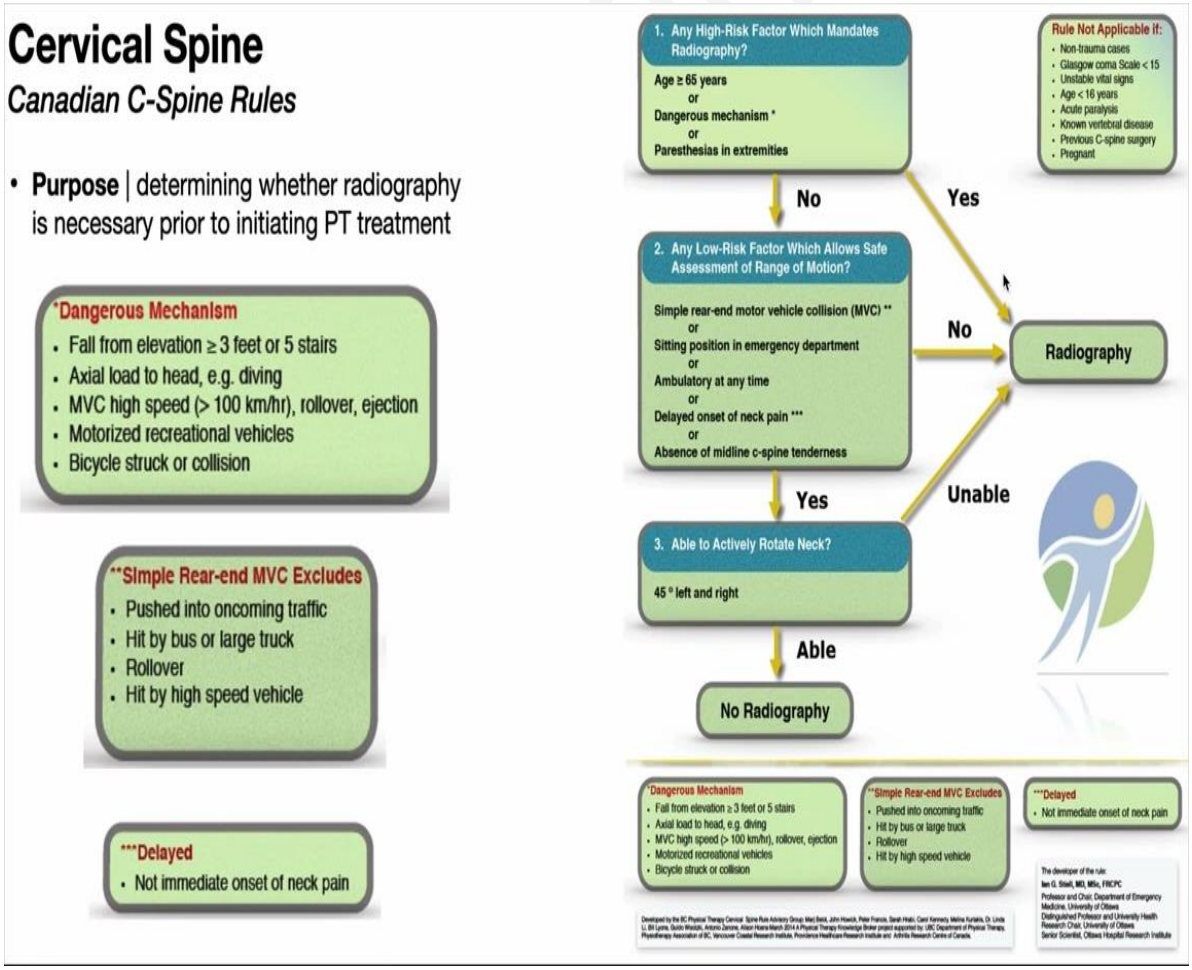
Joint examinations

1. Neck examination: Peripheral paresthesia
2. Back examination: Sciatica or Cauda equina syndrome
3. Shoulder examination: ACJ sprain/ impingement/ tear/ tendonitis
4. Elbow examination: Medial or lateral epicondylitis
5. Hand examination: Rheumatoid arthritis/ cut in middle finger FDS
6. Hip examination: Rami fracture
7. Knee examination: Fibula head, patellar dislocation, degenerative meniscal tear or MCL injury
8. Ankle and foot examination

Neck Examination

Ask about recent trauma

For a non-English speaking person – ask for hospital translator and if not available, ask consent from the person and use the bystander for translator


Cervical Spine
Canadian C-Spine Rules
• Purpose | determining whether radiography is necessary prior to initiating PT treatment
*Dangerous Mechanism
• Fall from elevation ≥ 3 feet or 5 stairs
• Axial load to head, e.g. diving
• MVC high speed (> 100 km/hr), rollover, ejection
• Motorized recreational vehicles
• Bicycle struck or collision
**Simple Rear-end MVC Excludes
• Pushed into oncoming traffic
• Hit by bus or large truck
• Rollover
• Hit by high speed vehicle
***Delayed
• Not immediate onset of neck pain
1. Any High-Risk Factor Which Mandates Radiography?
Age ≥ 65 years
or
Dangerous mechanism *
or
Paresthesias in extremities
Rule Not Applicable if:
• Non-trauma cases
• Glasgow coma Scale < 15
• Unstable vital signs
• Age < 16 years
• Acute paralysis
• Known vertebral disease
• Previous C-spine surgery
• Pregnant
No
Yes
2. Any Low-Risk Factor Which Allows Safe Assessment of Range of Motion?
Simple rear-end motor vehicle collision (MVC) **
or
Sitting position in emergency department
or
Ambulatory at any time
or
Delayed onset of neck pain ***
or
Absence of midline c-spine tenderness
No
Radiography
Yes
Unable
3. Able to Actively Rotate Neck?
45 ° left and right
Able
No Radiography
*Dangerous Mechanism
• Fall from elevation ≥ 3 feet or 5 stairs
• Axial load to head, e.g. diving
• MVC high speed (> 100 km/hr), rollover, ejection
• Motorized recreational vehicles
• Bicycle struck or collision
**Simple Rear-end MVC Excludes
• Pushed into oncoming traffic
• Hit by bus or large truck
• Rollover
• Hit by high speed vehicle
***Delayed
• Not immediate onset of neck pain

Introduction

Good morning, I am Dr.Mawan, ED registrar, may I know your name and age please?

Patient not talking, can I get a hospital translator? Not available

Hello, I am Dr. Marwan ED registrar, may I know your name and age please?

Can you ask your cousin that whether I can use you as his translator?

Hello, I am Dr. marwan, ED registrar, may I know your name and age please?

I have been asked to take some data from you and examine you. Is that ok for you?

How can I help you?

Oh, I am so sorry to hear that. Are you in pain now, shall I offer you some pain killers?

Can you tell me from how far you fell down?

When did the pain start?

According to Canadian C. spine rule you are having low risk/ high risk for the c. spine injury

- If high risk –
    - According to your data you have neck pain and you are more than 65 yrs old and you need CT scan.
- If low risk -
    - Patient is sitting in the couch. So, this is low risk for injury. Now can you move your neck for 45 degrees to both sides?
    - Ok. Patient has no resistance or any pain. So, this is a low risk injury and there is no indication for c. spine collar and radiography.

I need to examine your lower limb and upper limb which involves look, feel and do some special test and I have to expose your arm and leg. Is that ok for you?

Neck

- Inspection
    - Asymmetry, deformities, swelling, scars, wasting, bleeding or any lacerations
- Palpation
    - Tell me if you feel any pain, palpate the spinal process for alignment and tenderness
    - Palpate the paraspinal muscles for any tenderness
- Carotid pulse
    - Auscultate for bruit, then palpate the carotid pulse
- Move (not done if the patient is high risk)
    - No midline tenderness, so it is safe to move the neck
    - Rotation: Can you turn your head to the left and the right?
    - Flexion: Can you touch the chin to your chest like that?
    - Extension: Can you look up at the ceiling like that?
    - Lateral flexion: Can you touch your ear to your shoulder on each side

Dr Marwan Kabir

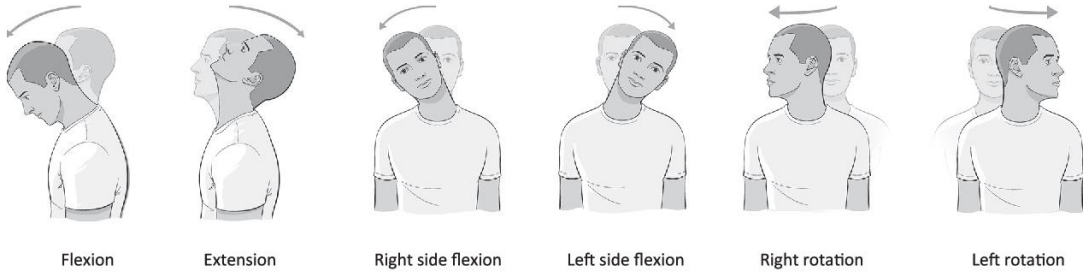
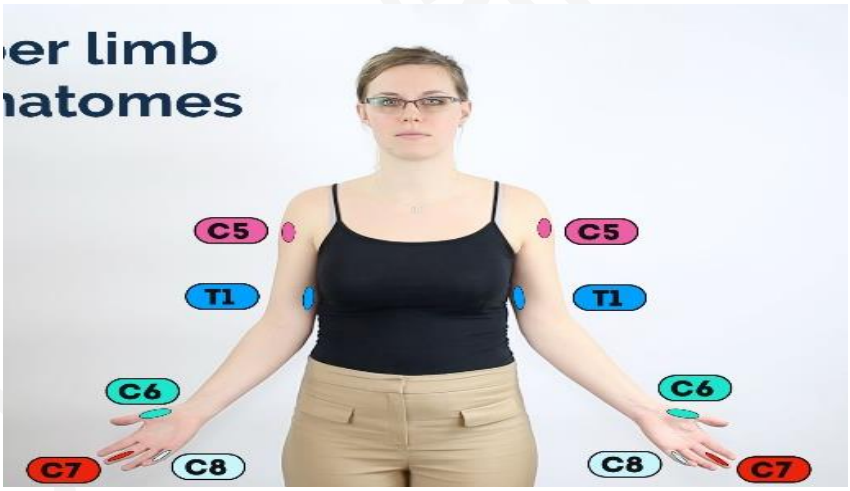


Fig. 2. Neck movements tested.

- Passive movement
  - Now relax, I will do the same movement for you

Neurological examination

- Tone
  - Can you hold my hand and I will assess your arm tone? Thank you
- Motor.
  - Shoulder abduction (C5), adduction (C6/C7)
  - Elbow flexion (C5/C6), extension (C7)
  - Wrist extension (C6), flexion (C6/C7)
  - Finger extension (C7)
  - Finger abduction (T1)
  - Thumb abduction (C8/T1)
- Sensation



- Deep tendon reflexes
  - Biceps reflex (C5/C6)
  - Supinator (C5/C6)
  - Triceps reflex (C6/C7)

Let me help you to redress. Are you comfortable now? Your examination is normal and no need of imaging/ You are high risk category and you need CT imaging. (if less than 16yrs – need MRI).

Back examination

Introduction

History

- Where in the pain?
- Is it radiation to anywhere?
- Associated symptoms – numbness, paralysis, urinary incontinence and bowel symptoms
- Did you have recent trauma?

I need to examine your back involving look, feel, move and do some special test and expose your upper body. Would that be ok with you?

General inspection

- AD SWIFT – Asymmetry, Deformities, Swellings, Wasting, Involuntary movement. Fasciculations, Tremor

Spine

- Anterior: scars, posture, asymmetry and pelvic tilt
- Lateral: Cervical lordosis, thoracic kyphosis, and lumbar lordosis
- Posterior: spinal and iliac crest alignment, muscle wasting, abnormal hair growing or bruising

Gait

Could you walk to the end of the room and come back to assess the gait?

- I will look for antalgic gait, Trendelenburg's gait, Waddling gait
- Assess: Speed, Symmetry, Balance, arm swing

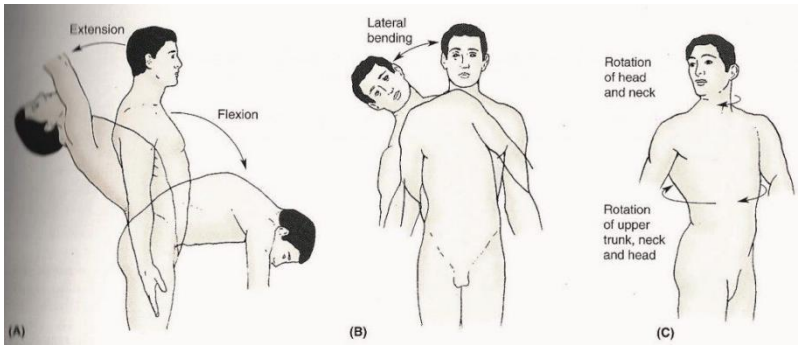
Palpation

- Tell me if you have any pain
- Palpate the spinal process and sacroiliac joints for alignment and tenderness, then palpate the paraspinal muscles for tenderness

Move

- Active movement of cervical spine:
    - Rotation: Can you move to left and right?
    - Flexion: Can you touch the chin to your chest like that?
    - Extension: Can you look up the ceiling like that?
    - Lateral flexion: Can you touch your ear to your shoulder on each side?
- Passive movement of cervical spine
    - Relax and I will move the same for you
- Active movement of lumbar spine:
    - Flexion: Can you touch your toes, whilst keeping your legs straight?
    - Extension: Can you lean back as far as you can?
    - Lateral flexion: Can you slide your left hand to your left leg?

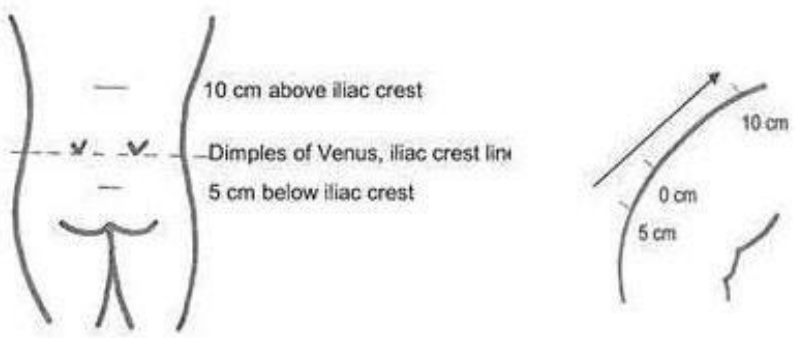
Dr Nawaf Kabir



Special test

Schober's test: For restricted flexion of the lumbar spine, such as ankylosing spondylitis

1. Identify PSIS on each side
2. Mark the skin in the midline 5cm below the PSIS
3. Mark the skin in the midline 10cm above the PSIS
4. Ask the patient to touch their toes to assess lumbar flexion
5. Measure the distance between the two lines (normal more than 15 – 20 cm)



Sciatic stretch test (straight leg raise): If you feel pain tell me

1. Position the patient supine
2. Passively flex the hip whilst keeping the patient's knee fully extended
3. Once the patient's hip is flexed, dorsiflex the patient's foot

Pain in the posterior thigh or buttock = Positive test e.g. Disc prolapse

v

Femoral stretch test: If you feel pain tell me

1. Position the patient prone
2. Flex the patient's knee to 90 degree and then extend the hip joint
3. Finally, plantarflex the patient's foot

Pain in posterior thigh or inguinal region = Positive test

I have finished my examination. Let me help you redress. Are you in pain? Are you comfortable.?

I would like to resent my findings

Management

Cauda equina syndrome

I would like to keep you in observation room and do general physical examination and upper and lower limb neurological examination and rectal examination to assess the rectal tone. I would like to run some test like FBC, Biochemistry and imaging of your back preferably MRI and I will consult neurosurgeon for further management

Sciatica

Keep in observation. Examine the lower and upper limbs and if all normal discharge the patient analgesics and printed leaflets and I will give appointment for GP for follow up.

Shoulder examination

History

- How can I help you?
- You had a trauma?
- What is your dominant hand?

Rotator cuff injury: Tendonitis, Impingement or tear

- Supraspinatus: Principle abductor
- Subscapularis: Internal rotator
- Infraspinatus and teres minor: External rotators

Tendonitis: Tenderness in the insertion of tendons, without movements

Impingement: Pain on movements

Tear: Weakness on movements

Dr Marwan Kabir

Supraspinatus initiates abduction of the arm from 0 – 15 degrees, then assists deltoid in abduction of arm after 15 to 90 degrees, and finally stabilizes head of the humerus in the glenoid cavity

The defect is in abduction, internal rotation, and external rotation:

Examination

I need to examine your both shoulder and this involves look, feel and move, do some special test and expose your upper body. Would That be ok for you?

General inspection:

- AD SWIFT: Asymmetry, Deformity, Swelling, Wasting, Fasciculation, Tremor

Inspection

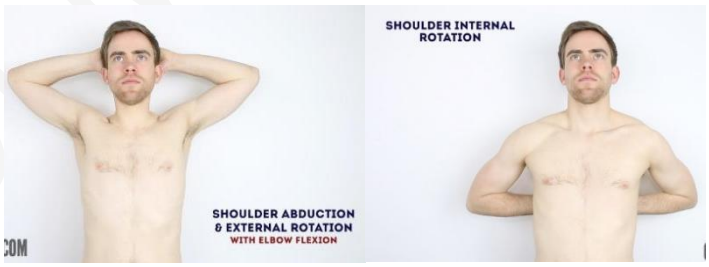
- Anterior: for scars, asymmetry and deltoid muscle wasting
- Lateral: for deltoid muscle wasting
- Posterior: Trapezius, supraspinatus and infraspinatus muscle wasting, winged scapula (can you do like that?), ipsilateral serratus anterior muscle weakness and long thoracic nerve injury

Feel

- Feel and compare T in both shoulder for septic and inflammatory arthritis
- Shoulder joints palpation:
    - While looking at the patient eyes
    - Sternoclavicular joint, Clavicle, AC joint, Coracoid process, head of the humerus, Greater tuberosity of the humerus, greater tuberosity of the humerus, Spine of the scapula

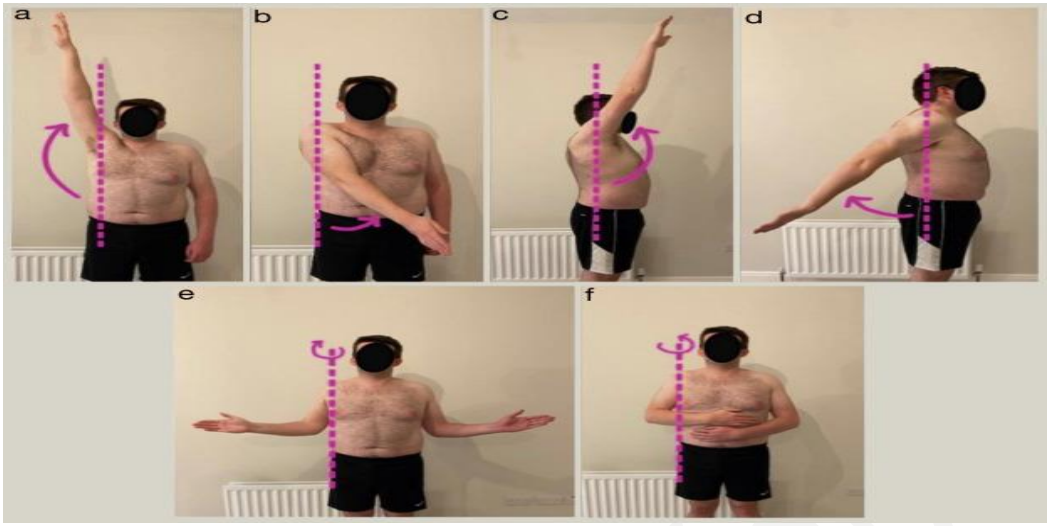
Active movement

- Can you do like that
- External rotation and abduction of the shoulder
- Internal rotation and adduction



- Shoulder flexion (normal 150 – 180)
- Shoulder extension (normal 40)
- Shoulder abduction (up to 180)
- Shoulder adduction (10 – 40)
- External rotation (80 – 90)
- Internal (80 – 90)
- Can you raise your arm I want to assess the movement of the scapula?

Dr Nawaz Kabir



Passive movement

Relax now I will do the same for you?

- Passive shoulder flexion
- Passive shoulder extension
- Passive shoulder abduction
- Passive shoulder adduction
- Passive shoulder internal and external rotation

Not doing any active movement – either dislocation or fracture or tear

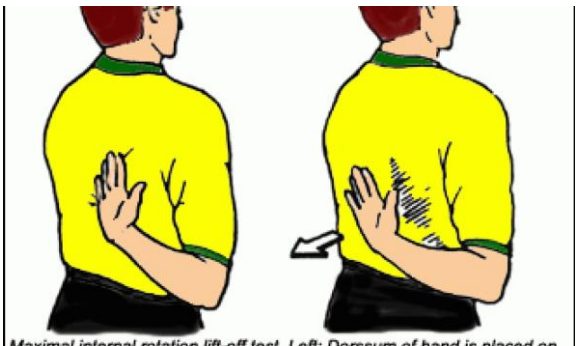
If the patient not letting to do passive movement - tear

If the patient is not moving the shoulder in any direction – either dislocation or fracture

Special test

- Supraspinatus: principle abductor
  - Neer's test: for impingement
    - If there is tenderness - Tendonitis
    - Like empty can and abduct the arm
  - Jobe's test (Empty can) test:
    - Empty can like and push the arm down
    - If arm fall and weakness– there is tear
    - If there is pain on resistance or movement - impingement
  - Drop test: Painful arc (pain 60 – 120)
    - Active abduction and ask to lower the arm slowly. If the pain In the end of abduction – AC joint pathology (at 180 degree – 120 degree abduction)
    - If pain from 60 – 120 degree – painful arc syndrome
    - If arm fall from 180 – 0 – it is supraspinatus tear
- Infraspinatus and teres minor: external rotators
  - Can you push agenized me?
  - Resisted external rotation test
  - Only pain – impingement
  - If no resistance – tear

- Subscapularis: Internal rotator
  - Gerber's lift off test
  - Don't let me to push you
  - If pain only – tendonitis
  - If no resistance - tear



Maximal internal rotation lift-off test. Left: Dorssum of hand is placed on midline of posterior thorax at level of inferior aspect of the scapula. Right:

- ACJ sprain:
    - Scarf test

Management

- AC joint pathology
    - End of abduction will have pain
    - Scarf test pain
    - All other tests are normal
- Impingement syndrome
    - Pain in any muscle in the rotator cuff muscle
- Injury/ Tear
    - There will be no resistance for all muscles or one muscle

Observation room, do all upper limb neurological test and do some blood test and I will discharge you with painkillers and arm elevation and rest and follow up with orthopedic team.

Elbow examination

I need to examine your both elbows and this involves look, feel and move, do some special test and expose your upper body. Would That be ok for you?

General inspection:

- AD SWIFT: Asymmetry, Deformity, Swelling, Wasting, Fasciculation, Tremor

Inspection

- Anterior: for scars, asymmetry and carrying angle (Cubitus Varus or vulgus)
- Lateral: for fixed flexion deformity, scars, swelling
- Posterior: rheumatoid nodules, psoriatic plaques, scars, swelling

Feel

- Feel and compare T in both shoulder for septic and inflammatory arthritis
- Elbow joint palpation
    - Radial head, Lateral epicondyle of the humerus
    - Olecranon
    - Medial epicondyle of the humerus
- Biceps tendon palpation
    - Can you do like that? (flexion to 90 degrees)

Dr Marwan Kabir

Active movement

- Flexion (0 – 145)
- Extension (0)
- Supination (0 – 85)
- Pronation (0 – 90)

Passive movement

Relax and now I will do the same for you

Special test

- Active movement against resistance
    - Medial epicondylitis (golfer's elbow)
        - Can make a fist and flex your wrist against my hand?

    - Lateral epicondylitis (tennis elbow)
        - Can you make a fist and extend your wrist against my hand?

Most likely problem is medial/ lateral epicondylitis due to inflammation of the tendons due to overload injury. Ask for dominant hand

Management

Discharge, painkiller and arm elevation and rest and follow up

---

Hand examination

History

- Ask about the dominant hand?
- AMPLE
- Can be foreign body inside the hand – offer x-ray
- If non traumatic – Rheumatoid arthritis or trauma and injury to the Flexure digitorum superficial

- Assess the neurovascular assessment and function

Examination

I need to examine your hand and wrist which includes look, feel and do some special test for your hand. Is that ok for you?

Can you keep the hand in the pillow?

General inspection:

- AD SWIFT: Asymmetry, Deformity, Swelling, Wasting, Fasciculation, Tremor

Inspection

- Dorsal aspect: Scars, swelling, Skin color changes, Bouchards nodes, Heberden's nodules, Swan neck deformity and Z thumb, Boutonnieres deformity, psoriatic plaques, splinter hemorrhages, nail changes. I can see a wound in the… side proximal to interphalangeal joints.
- Palmer aspect: Scars, swelling, Dapuytrens's contracture, Thenar and hypothenar wasting
- Elbow: Rheumatoid nodules, psoriatic plaques, Scars, Swelling (no need to tell everything)

Palms up - palpation

- Temperature: Compare in both sides in hand and elbow joint for septic and inflammatory arthritis
- Radial and ulnar pulse
- Thenar and hypothenar eminence bulk
- Palmer thickening – associated with Dapuytrens's contracture

- Median and ulnar nerve sensation
- Can you feel that in your chest? Can you close your eyes and if you can feel that in your hand please tell me?
    - Median nerve sensation overt thenar eminence and index finger
    - Ulnar nerve sensation over the hypothenar eminence and little finger

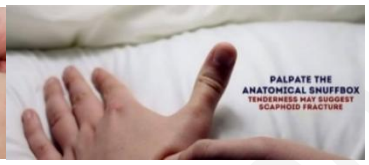
Palms down - palpation

- Temperature: Compare in both sides in hand and elbow joint
- Radial nerve sensation: Over first dorsal webspace

Dr Mrwan Kaur

- Metacarpophalangeal joint squeeze: For tenderness (active inflammatory arthropathy)

- Bimanual wrist palpation: palpate the wrist for evidence of joint line irregularities or tenderness
- Bimanual joint palpation: palpate for hand joints and comparing for tenderness, irregularities and warmth: MCPJ, PIPJ, DIPJ, CMCL of thumb (squaring suggesting OA) (I will fell all the joints from proximal to distal while looking at the patient's eyes)
- Anatomical snuffbox: For tenderness and scaphoid fracture



Active movement

Can ask showing the movement and Can you do that?

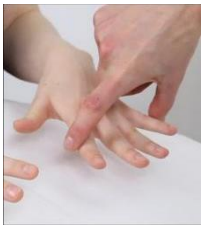
- Finger flexion: make a fist
- Finger extension: Open your fist and splay your fingers
- Wrist extension: Put the palms of your hand together and extend your wrist fully
- Wrist flexion: Put back of your hands together and flex your wrist fully

Passive movement:

Relax I will do the same for you

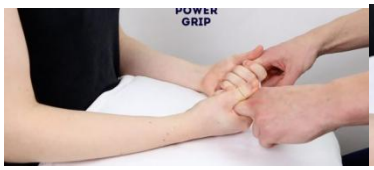
Motor assessment:

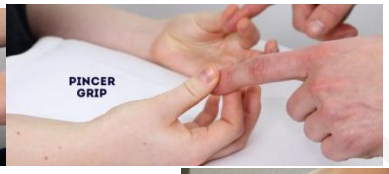
- Wrist and finger extension against resistance: Radial nerve intact in both hands
- Index finger abduction against resistance: Ulnar nerve intact both hands
- Thumb abduction against resistance: Median nerve intact

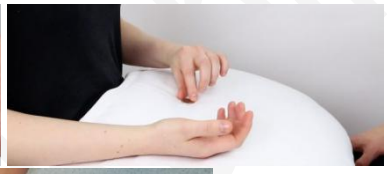


Function

- Power grip: Can you squeeze my fingers with your hand?
- Pincer grip: Can squeeze my finger between your thumb and index finger?
- Pick up a small object: Could you please pick up the coin off the table?
- Testing FDP: I'll hold your finger DIPJ in extension and please, flex the tip of the finger
- Testing FDS: I'll hold your finger PIPJ in extension and please flex the tip of the finger



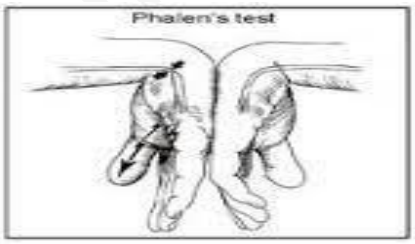


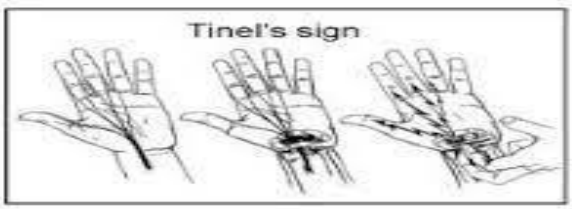


Special test:

For suspected carpal tunnel syndrome or any medical cause only

- Tinel's test:
  - For median nerve compression for carpal tunnel syndrome. I will tap on carpal tunnel and if you feel or numbness in thumb, index and middle fingers, tell me
- Phalen's test
  - Can you do like that for 60 sec, if you feel tingling or numbness in thumb, index and middle finger tell me.





Diagnosis is FDS injury/ FDP injury

Management

- Wound management
- Do x-ray to exclude foreign body
- Refer the patient to plastic surgeon for repairment

- Need to ask the immunization and if not clean or the immunization is not uptodate can give tetanus immunization

---

Hip examination

History

- What happen?
- How long?
- Which side?
- Any history of trauma?
- Is the pain radiating to lower limbs?

In order to come to a diagnosis, I have to look, feel, move, walk and do some special test to your hip joint which will include exposing your lower limbs up to the thigh. Is that Ok for you?

General inspection

- Form front: Scars, Pelvic tilt, Quadriceps wasting
- From side: Lumbar lordosis, Knee flexion, Foot arches
- Inspect from behind: Scoliosis, Iliac crest alignment, gluteal muscle bulk

Gait

- Can you walk for me for little distance?
- I will look for arm swing, symmetry, Balance
- If patient cannot walk or going to fell down, oh I am so sorry, let me support you. Do you need any pain killer? Please lie down for me? Thank you

Palpation

- I will palpate the both hip joint for any tenderness and warmth wile looking at the patient eyes.
- Palpate the greater trochanter for tenderness
- Measure apparent leg length – from umbilicus to the tip of the medial malleolus
- True leg length – From anterior superior Iliac spine to the tip of the medial malleolus

Active and passive hip movements

- Can you flex your hip and bring your knee to the chest? Thank you
- Ok I will do the same for you – Passive hip flexion
- Can you do it in the other leg? And will do the same to you
- Passive hip internal rotation, I will do it in other leg also
- Passive hip external rotation, I will do it in other leg also
- Passive hip adduction, I will do it in other leg also
- Passive hip adduction, I will do it in other leg also
- Can you lie supine – Passive hip extension – not a must

Dr Mamun Kabir

Special test

Thomas test

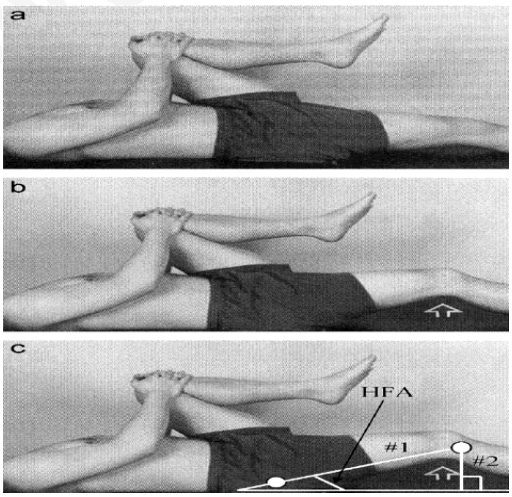
Can you lie flat?

1. Place the hand under patient spine
2. Passively flex the unaffected leg (hip and knee) as far as you are able
3. Your hand should detect that the lumbar lordosis is flattened
4. With the unaffected leg flexed the contralateral leg should be flat on the bed

The test is positive if the affected thigh raises off the bed indicating a loss of extension in the hip

This would suggest a fixed flexion deformity in the affected hip

THE TEST IS POSITIVE IF THE AFFECTED
THIGH RAISES OFF THE BED INDICATING
A LOSS OF EXTENSION IN THE HIP
THIS WOULD SUGGEST A FIXED FLEXION
DEFORMITY IN THE AFFECTED HIP

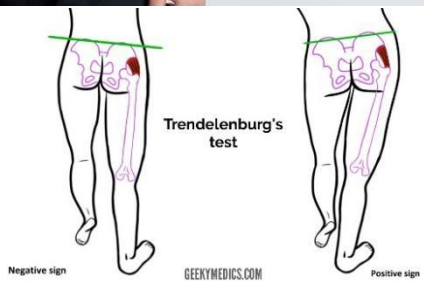


Trendelenburg's sign

Can stand for me? Thank you

1. Place hands on the iliac crests on either side of the pelvis
2. Ask the patient to stand on one leg for 30 sec.
3. Observe your hands to see which side moves up or down
4. Normally the iliac crest on the side with the foot off the ground should rise up
5. Repeat the test on the opposite side.

TRENDELENBERG'S SIGN
1. PLACE HANDS ON THE ILIAC CRESTS ON EITHER SIDE OF THE PELVIS
2. ASK THE PATIENT TO STAND ON ONE LEG FOR 30 SECONDS
3. OBSERVE YOUR HANDS TO SEE WHICH MOVES UP OR DOWN
4. NORMALLY THE ILIAC CREST ON THE SIDE WITH THE FOOT OFF THE GROUND SHOULD RISE UP
5. REPEAT THE TEST ON THE OPPOSITE SIDE



Management

- If pelvic trauma – Unilateral pubic rami fracture
- Trendelenburg test and Thomos test will be positive
- Lower limb neurovascular assessment and put on a pelvic binder for support and can discharge and asked to review in fracture clinic
- If fracture bilateral – Need to refer to orthopedic team for open reduction and internal fixation

---

Knee joint examination

- ❖ Can give meniscal problem either traumatic or non-traumatic (degenerative)
- ❖ Fracture – head of fibula fracture – tenderness at the site of the palpation
- ❖ Patella dislocation – tenderness at the medial side
- ❖ Ligament injury – anterior/posterior/ lateral or medial

History

Consent

Examination

Inspection

- Form front: Scars, Pelvic tilt, Quadriceps wasting
- From side: Lumbar lordosis, Knee flexion, Foot arches
- Inspect from behind: Scoliosis, Iliac crest alignment, gluteal muscle bulk

Gait

- Can you walk for me? Thank you

Palpation

Can you lie down?

I will feel your knee

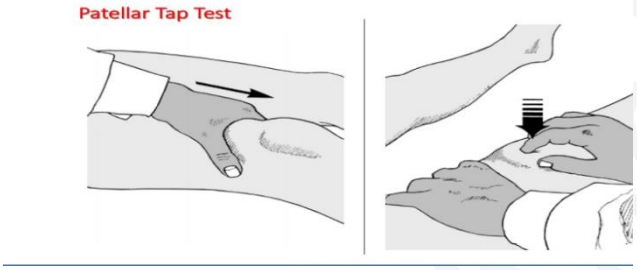
Dr Marwan Kabir

1. Knee extension

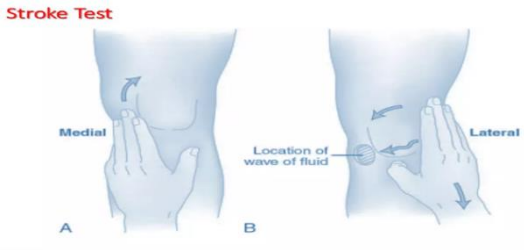
- I will assess the temperature on both sides.
- Palpate the knee for (4 points) while looking at the eyes of the patient for any tenderness
    - I will palpate the knee from above for quadriceps tendon
    - Patella tendon – medial, lateral, up and down

2. Joint effusion

- Patella effusion
    - Patella tap - Milking from the above the knee and tapping on the patella – for large effusion



    - Swipe test - If no large effusion, I will do swipe test. Pushing from one hand to down to up on medial side and pushing by other hand in other side from up to down in lateral side
        - Bulge in the medial side is positive



3. Knee flexion

Can you flex your knee? I will feel your knee. Look at the patient eyes while palpating the knee

- From down – Patella tendon, Tibial tuberosity, medial joint lines
- From lateral side – head of patella, lateral joint, collateral ligaments, popliteal fossa
- Measure and compare quadriceps circumference (20cm above from the tibial tuberosity)

Movement test

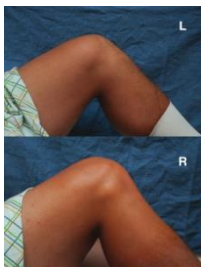
- Active knee flexion and extension only and other movements are passive
    - Can you close your heel to the bottom?
- Passive flexion and extension and look for Crepitus

- Passive knee hyper–extension raise the leg above the couch

Special test – for tenderness or laxity of the joint

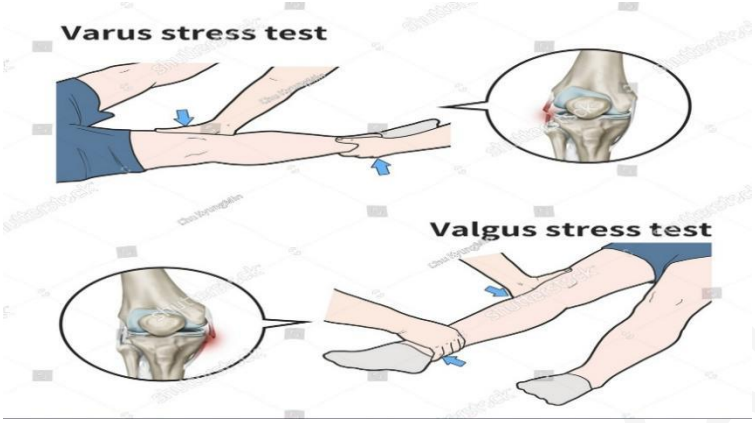
- **Test for anterior cruciate ligament**
  1. Anterior drawer test

     - Flex the knee 90 degrees
     - Pull or push the tibia with hand
       - Anterior drawer test for anterior cruciate ligament – pull tibia anteriorly
         - Increased movement suggests
         - Cruciate ligament test laxity or rupture
  2. Lachman's test
     - Flex the patient leg to 30 degree
     - Hold the lower leg with one hand and hold the thigh with other hands
     - With the hand holding the tibia, pull the tibia forward on the femur while other hand stabilizes the femur. Do it in the normal leg and compare with other side.
       - If tibia moving anteriorly – anterior cruciate ligament injury
- **Test for posterior cruciate ligament**
  1. Posterior drawer test
     - Keep the knee in 90 degrees and then push the knee anterior to posterior
     - Then remove the hand look laterally posteriorly at the tibia. If the tibia moving posteriorly – posterior sag sign

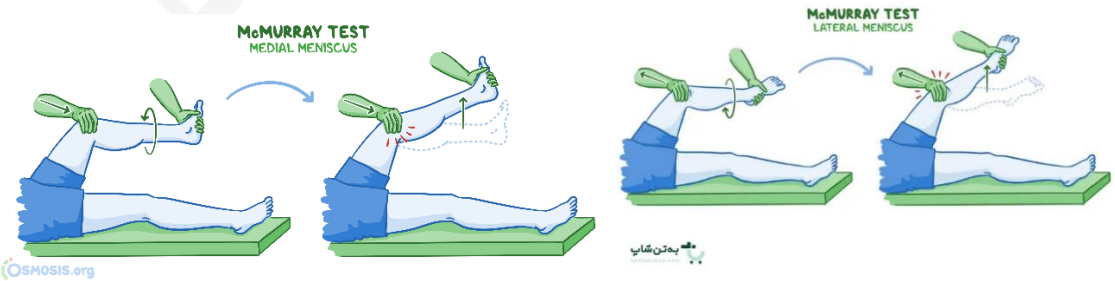


- **Test for medial collateral ligament**
  - Varus stress test – pull medially

        - Support the thigh medially and hold the tibia and pull medially to check for tenderness in the medial aspect
    - I will support upper and lower part of the knee and push medially to check medial collateral ligament



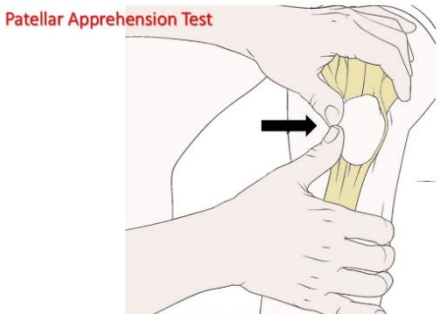
- **Test for lateral collateral ligament**
    - Vulgus stress test – push laterally
        - Support the thigh laterally and hold the tibia and push laterally to check tenderness in the lateral aspect.
    - I will support upper and lower part of the knee and push laterally to check lateral collateral ligament
- **To assess the meniscus in both sides**
    - McMurray Test
        - Can you bend your knee?
        - I will support your knee and rotate your ankle. If you have any pain please tell me.
        - If you rotate medially and the stress will be on lateral meniscus and test the lateral meniscus
        - Then do extension
        - Then do lateral rotation and check for medial meniscus and extension
        - Then again flexion, lateral rotation and extension
            - Stress on medial meniscus
        - No trauma and having discomfort while doing medial or lateral rotation
            - Medial or lateral meniscal degeneration



- Test for patella dislocation
    - Patella apprehension test

Dr Imran Kabir

- Displace the patella laterally, and the patient will stop you



Diagnosis

- Patella dislocation – Patella apprehension test will be positive
- Medial cruciate ligament injury – anterior/ posterior drawer tests positive and Lachman test positive
- Fracture of fibula head – tenderness at the fibular head in palpation
- Degenerative meniscal tear – McMurray test positive (and no hx of trauma)
- Medial/ lateral ligament tear – lateral/ medial stress test (Varus/ Vulgus test positive)

Management

- Keep in observation room
- Do examination of (joint above and below) hip and ankle joints
- Discuss with orthopedic team and discharge with painkillers
    - Patella dislocation / fracture of fibula – X-ray before and after reduction and assess neurovascular examination
    - Degenerative meniscal tear – do not do anything and refer to orthopedic
    - Medial cruciate ligament tear – pain killers, rest, elevation and orthorefferal

---

Ankle examination

General inspection

- Anteriorly, laterally and posteriorly

Inspection

- Anterior – scars, swelling, deformities
- Lateral – foot arch
- Posteriorly – scars, muscle wasting, heel malalignment

Feel

- Temperature – in the ankle joint and compare
- Pulses – dorsalis pedis, Posterior tibial
- Metatarsophalangeal joint squeeze – for tenderness
- Ankle and foot palpation – from distal to medial joints and bone for any tenderness
    - Tarsal bones
    - Calcaneum

Dr Manveen Kaur

- Medial and lateral malleoli
- Distal fibula
- Achilles tendon

Movement

- Active movement
  - Plantar flexion – Can you move your feet down?
  - Dorsiflexion – Can you move the feet up?
  - Toe flexion – can you move your toes down?
  - Toe extension – Can you move your toes up?
  - Inversion – can move your foot inward?
  - Eversion – Can you move your foot outward?
- Passive movement
  - Relax and I will to the same (and support the distal tibia and not the joint)
  - Ankle dorsiflexion and plantarflexion
  - Sub-talar inversion and eversion hold the leg at distal tibia and rotate from calcaneum
  - Mid-tarsal inversion and eversion hold the tibia at distal end rotate the ankle from mid foot
  - Passive hallux flexion and extension – big toe up and down
  - Passive toe flexion and extension – all toes up and down

Special test

- **Thompson or Simmonds' test**
  - For Achilles tendon rupture
  - Squeeze the calf and see the foot movement
    - If the foot moves – test normal
    - If not moving – test is negative

Diagnosis

- Achilles tendon rupture

Management

- Observation room
- Examine the knee examination
- Refer to orthopedic for respire.

Dr Marwan Kabir

Communication Skills – Breaking Bad News

Breaking Bad News

1. Child died: Drowning
2. Child died: Cerebral palsy
3. Wife died: RTA
4. Wife died: Meningococcal septicemia
5. Husband died: MI or PE
6. Fetus died: Miscarriage in Lady (IVF) pregnancy
7. Husband going to die: Massive ICB/SAH
8. Husband going to die: Hematemesis, comatose and alcoholic liver cirrhosis
9. Husband going to die: Abnormal chest mass, cerebral edema
10. Mother is going to die: Cardiac arrest and ROSC, Hypotension, GCS 3/15
11. Husband has serious diagnosis: C4 fracture (quadriplegia)
12. Patient has serious diagnosis: Cirrhosis

Breaking Bad News

Breaking bad news about death

The setting

- I would ensure that department is safe and handed over the control to other colleagues
- I would turn off my bleep/ switch off my phone
- One nurse attend with me and we are in the privet room
- Fully aware of the patient details by reading any extra notes if available

Introduction

Hallo, I'm Dr. Marwan, ED registrar, I am here to explain regarding your son's condition.

Please be calm, we are here to help you and support you

Please have a seat please.

Dr Marwan Kabir

Before we start can I offer you a drink or anything else Mrs._____

Explanation and acknowledge the loss

Brief explanation - 1st warning shot

What do you know so far about condition of ----------?

That is correct Mrs.....

Your son was brought to the ED by ambulance after drowning. We tried to resuscitate him but I'm sorry, I have very bad news for you, he died.

Pause - Offer tissue and water, be silent for 10s with good eye contact till start talking or look at you

Detailed explanations- 2nd warning shot

Are you ok? Did you understand what I have said? Do you want me to explain more?

When ..... was brought to the ED, his heart was not beating and he was not breathing. We moved him directly to the resuscitation room. We involved all specialties needed in such cases. We put a tube in his airways to breath. We did blood tests. We gave him medications and we resuscitated him for 1 hr., to get his heart beat back. But unfortunately, all efforts to save his life did not work and he died.

Pause - Offer tissue and water, be silent for 10s with good eye contact till start talking or look at you

Further support and actions

1. Mrs..... Do you want to call anyone? family or friends?

I will talk with one of our colleagues to arrange it for you

2. Do you have any children at home, is there anybody to care about them?

I will talk with social services to arrange for that.

3. Mrs..... Do you have any religious beliefs?

Do you want any religious ministers to attend the ED?

4. Mrs..... I would like to inform you that he died while drowning. Until now we don't have a clear reason for that. In such case we should involve the coroner.

5. Mrs..... I want to ask you a question. We are asking all people who have such situations. Do you register son for organ donation?

- If yes: Ok we will arrange the specialist nurse for organ (SNOT) donation to arrange for organ donation team

Dr Marwan Kabir

- If No: I think you agree with me, a lot of people waiting for organ donation. I think your son will be happy with this.

Would like to touch and see your son? Ok, let me clean the area for you, so that the equipment will not make you uncomfortable.

Now I will let you see and touch your son, meanwhile, I will contact bereavement office to offer advice, practical help and support like paper work, death certificate and funeral arrangement

Do you have an immediate question for me?

Mrs.....Did you understand so far what I have informed you?

Do you have any further questions?

Thank you. I will lead you now to see your son.

Explaining Fetal Loss/ Miscarriage by IVF

- If mention history taking – should mention as history taking and breaking bad news
- If explain the situation – only breaking bad news

The setting

- I would ensure that department is safe and handed over the control to other colleagues
- I would turn off my bleep/ switch off my phone
- Fully aware of the patient details by reading any extra notes if available
- Ensure member of nursing staff present to support them

Good morning, I'm Dr. Marwan, ED registrar, may I know your name and age please?

Nice to meet you. Did anyone attend with you?

How can I help you? Are you comfortable now?

Do you have any pain or bleeding?

Would you mind if we sit in a privet room to discuss about -------- and the staff nurse attend with us?

Before we start can I offer you a drink or anything else Mrs._____

Have a seat please.

I'm really sorry for you to coming to ED to today. May I know what made you to come here today?

Dr Marwan Kabir

Brief explanation - 1st warning shot

That is correct Mrs....., would you like me to explain your results now?

I'm sorry, I have bad news for you, but your baby does not have a heart beat and he is dead.

Pause - Be silent for 10s with good eye contact till start talking or look at you

Detailed explanations- 2nd warning shot

Mrs.....I'm sorry, but your baby does not have a heart beat and he is dead. Do you understand what I have said?

Further support and actions

Mrs..... Do you want to call anyone, husband or friend?

I will talk with one of our colleagues to arrange for that.

I have been informed that it's the 1st pregnancy for you. Is that right?

Taking data

- What is the type of conception? natural or assisted conception?(if not in the notes don't ask)
- Do you have any past medical disease?
- Any allergies?
- I know this is a difficult situation for you. We are here to help you. What is your concern?

We are here to help you, we will discuss with Obs and gyne team. You have the choice of waiting for the tissues to pass naturally, taking medications or performing a dilatation and curettage procedure.

I encourage you to go home and process the information and call back and let me know how you want to proceed.

Miscarriage invitro fertilization is common compared with spontaneous and it is not your fault

Do you have an immediate question for me?

Mrs..... Did you understand so far?

Do you have any other questions for me?

Thank you

Dr Marwan Kabir

History taking in miscarriage and breaking bad news

The setting

History

- How can I help you?
- I am sorry you have vaginal bleeding last night. Are you comfortable now? Do you still have bleeding?
- I am here to help you and support you and I need to take some data from you and I will explain the report of the USS.
- Ask ODIPARA – Onset, Duration, How much the bleeding? Progressing
- Associated symptoms – any other associated symptoms?
- Any past medical history
- Any surgical history?
- Are you on any medication? Any allergies?
- Where do you live and what do you do for living?
- Do you smoke or drink alcohol or by any chance do you use any illicit drugs?
- Would you like to add anything?

ICE: What is your concern?

Explain the outcome

- I have bad news for you. The USS shows the fetus does not show any heart beat it is dead.
- Do you understand what I have said?
- I know this is a difficult situation for you. Do you want me to call any one for you?
- Ok, I will arrange my colleague for that.
    - This is my 1st pregnancy and I was waiting for a long time.
- Oh, I am sorry, yeah I know it is difficult situation for you
    - It is my fault
- Oh, don't say like that, its not your fault. Miscarriage are more common in invitro fertilization than normal pregnancy.

Dr Marwan Kabir

Management plan

So, Mrs……. now I will arrange contact with the OBG and GYNE team for the further management. It would include you can wait until the fetal tissue pass on its own or we can go for surgical or medical management. You can discuss with the OBG team.

Acknowledge the Loss

The setting

- I would ensure that department is safe and handed over the control to other colleagues
- I would turn off my bleep/ switch off my phone
- Fully aware of the patient details and read any notes if available
- Ensure member of nursing staff present to support them

Good morning, I'm Dr. Marwan, ED registrar, may I know your name and your relationship to --------- please?

Nice to meet you. Did anyone attend with you?

Would you mind if we sit in a privet room to discuss about -------- and the staff nurse attend with us?

Before we start can I offer you a drink or anything else Mrs._____

Have a seat please.

I'm really sorry you are here today. What do you know so far about condition of ----------?

Explanation and acknowledge the loss

Brief explanation - 1st warning shot

That is correct Mrs……..,

I'm sorry, I have very bad news for you. Your son was brought to the ED by ambulance 1 hour ago. He presented to ED in very critical condition. He has massive brain bleeding and unfortunately, he will not survive.

Pause - Be silent for 10s with good eye contact till start talking or look at you

Detailed explanations- 2nd warning shot

Mrs……..I'm sorry your husband will die/going to die. Do you understand what I have said?

He was brought to the ED with low conscious level. We put a tube to the airway and connected him to machine to help him breath. His brain imaging CT shows massive bleeding and revived by the consultant neurosurgeon who has said he will not survive from his brain bleed.

Dr Marwan Kabir

Do you want me to show you his CT brain imaging?

He should be made comfortable and unfortunately, he will not survive. We will continue life sustaining treatments.

Pause - Be silent for 10s with good eye contact till start talking or look at you

Patient - " I want him to transfer to another hospital"

I appreciate your concern. The management is same in all hospital and I think you agree with me, we should make him comfortable.

Is he/she insisting on 2nd opinion?

You can take the imaging from here to another hospital for second openion.

Further support and actions

Mrs..... Do you want to call anyone? family or friends?

I will talk with one of our colleagues to arrange it for you

Do you have any children at home, so we can bring them here?

I will talk with social services to arrange for that.

Do you want to see and touch your son?

Sure Mrs….. I must tell you that now your son is connected to the machine and tubes and cannula to keep him alive.

Mrs..... Do you have any religious beliefs? Do you want any religious ministers to attend the ED?

Mrs..... I want to ask you a question. We are asking all people who have such situations. Does your husband registered for organ donation?

Now I will let you see your son.

Do you have an immediate question for me?

Mrs.....Did you understand so far what I have informed you?

Do you have any further questions?

Thank you. I will lead you now to see your husband

Dr Nawan Kabir

Comatose patient with alcohol liver cirrhosis

Prognosis assessment

Child - Pugh Score

Factor	1 Point	2 Point	3 Point
Total bilirubin	< 34	34 - 50	> 50
Serum albumin	> 35	28 - 35	< 28
PT/ INR	< 1.7	1.7 - 2.3	> 2.3
Ascites	None	Mild	Moderate - severe
Hepatic encephalopathy	Non	Grade 1 - 2	Grade 3 - 4 or Refractory

	Class A	Class B	Class C
Total points	5 - 6	7 - 9	10 - 15
1 yr. survival	100%	80%	45%

If they mention that patient having Child - Pugh criteria class C -

Should explain as patient having very high bilirubin and low protein levels and there is moderate to severe ascites.

Explaining the Serious Diagnosis

The setting

I would ensure that department is safe and handed over the control to other colleagues

I would turn off my bleep/ switch off my phone

Fully aware of the patient details by reading any extra notes if available

Ensure member of nursing staff present to support them

Good morning, I'm Dr. Marwan, ED registrar, may I know your name and your relationship to --------- please?

Nice to meet you. Did anyone attend with you?

Dr Marwan Kaur

Would you mind if we sit in a privet room to discuss about -------- and the staff nurse attend with us?

Before we start can I offer you a drink or anything else Mrs._____

Have a seat please.

I'm really sorry you are here today. What do you know so far about condition of ----------?

Explanation and acknowledge the loss

Brief explanation - 1st warning shot

That is correct Mrs....., would you like me to explain bit more?

I'm sorry, I have very bad news for you, He has fracture in his neck vertebral body no - 4 and unfortunately, he has paralysis in upper and lower limbs.

Pause - Be silent for 10s with good eye contact till start talking or look at you

Detailed explanations- 2nd warning shot

Mrs.....He has paralysis in upper and lower limbs. Do you understand what I have said?

He was brought to the ED with sever RTA. We moved him directly to trauma room. We resuscitated and do CT scan. Neurosurgeon attend with us saw the report. Do you want to see the CT? Look this is the C4 vertebra and you can see the fracture. It is compressing the vertebral column. So this will make him paralysis his 4 limbs.

Further support and actions

For C1 - C4 fractures

- This is the most sever spinal cord injuries
- There will be paralysis in arms, hands, trunk and legs.
- He will not be able to breath on his own, cough or control bowel movement.
- The ability to speak is sometimes impaired or reduced.
- As all the 4 limbs are affected this is called quadriplegia or tetraplegia.
- He will require complete assistance with activities of daily living such as eating, bathing and getting in or out of bed
- He may be able to use powered wheel chair with special control to move around on their own.
- He will require 24 hr. a day personal care.

For C5 - C8 fractures

- The corresponding nerves involve the arm and hand
- He can breathe on his own and speak normally
- He can raise his arms and bend his elbow
- He is likely to have total paralysis of wrist, hands trunk and legs

Dr Manwar Kaur

- He can speak and use the diaphragm which is muscle used for breathing, but his breathing will be weakened
- He will need assistance with most of the activities of daily living, but once in a powered wheel chair can move around from one place to another independently

Do you have any other questions?

Does it affect the sexual functions?

I'm sorry to say you that he will have erectile disfunction, but to help erection, you can you can use constrictor bands, cock rings or vacuum erection devices and good news is you can get pregnant by invitro fertilization.

Dr Marwan Kabir

Communication Skills – Difficult Referral

Difficult Referral

In talking to other specialty

1. Refer to ICU: DKA, Pneumonia, Hypotension and GCS 9/15
2. Refer to neurosurgeon: VP shunt, Headache, Fever and CT normal
3. Refer to cardiologist: Chest pain (HEART or TIMI score id high)
4. Refer to orthopedic: Smith fracture

ISBARA

I - Introduction

S - Situation

B - Background

A - Assessment

R - Recommendation

1. Introduction

I would ensure that the department is safe and handed over to the colleague, quiet and privet location, a senior staff nurse present to assist the patient and I would like to read any additional notes available to read.

Good morning, I'm Dr. Marwan, ED registrar calling from resuscitation room. Are you ICU doctor on call/ orthopedic doctor/ cardiology doctor on call / medicine doctor on call...?

Can I take your name and grade please?

I'm sorry to bother you. I need to discuss a case. Are you free to talk? if yes continue, If no

Can I call you after 5 min?

5 min paused.

Good morning. I'm Dr Marwan. Are you Dr.....? ICU / Cardiology/ medicine/ orthopedic registrar?

Do you have a min to discuss?

2. Situation

(Age, Gender, Name, Presentation)

Dr Marwan Kabir

I' calling regarding a ..... old women/ man called Mrs.....in resuscitation room and I would like your input regarding her management as I think she/he has

1. DKA and Pneumonia and needs ICU admission
2. VP shunt malfunction and needs ICU admission
3. High TIMI score/ Heart score and needs CCU admission
4. Have Smith fracture and needs ORIF

Why do you think ---one of the above?

3. Background

1. The patient blood sugar is 13, ketones > 6, and VBG is showing metabolic acidosis, Chest x-ray showing B/L Pneumonia

2. Patient having a history of VP shunt and has headache, fever, confusion, abdominal pain and hypotension.

3. Patent having typical chest pain and there is significant ST segment deviation

4. This is a difficult fracture to reduce and one that is prone to slippage of fracture fragments and malunion can result is significant deformity and neurovascular compromise can happen.

If the caller interrupts and talk - Be silent and listen to him)

Always your colleague is referring patient with unnecessary referral and I'm the one discharging patients. Don't know what you are doing in the ED

I'm sorry you feel that way, but I'm the most senior here and I will review all patients which were referred and review one by one. I will ensure that all patient referred are reviewed by the senior doctor. Now I'm quite concerned about this patient and really value your opinion, because the patient has sever DKA and pneumonia

Why does the patient need ICU admission?

4. Assessment

1. CURB - 65 score is 3 because of age > 65, hypotension and confused, and GCS 9/15 and regarding DKA patient is not tolerating oral fluids, I think you agree with me that this is another indication for ICU admission as well

2. Patient is hypotensive and having very high fever. She has GCS of 9/15

3. Patient having HEART score more than 7. because he is having a typical chest pain history and ECG shows typical ST segment deviation and his age is > 45 and he has more than 3 risk factors like DM, HT and smoking. Even though his trop I is negative, the score become 8 which is an indication for CCU admission.

Dr Marwan Kabir

4. Recommendation

1. Patient is on cardiac monitor, ECG, and chest x-ray are done. I took blood. I gave her IV normal saline and IV antibiotics in the ED. Anything else do you want me to do for the patient?

2. As this patient is having a VP shunt, my concern is this patient might have broken or malfunctioning VP shunt. So, I really appreciate your opinion as he might need surgery

3. We gave the patient aspirin, morphine, clopidogrel, anything else you want me to do to this patient until you are free.

End

OK, keep her in the ED, continue fluids, O2 monitoring and refer to HDU.

But I'm concerns about this patient, sever DKA and pneumonia. I think you agree with the patient is not safe to admit to HDU and I really would appreciate your input. Can you send any of your team member to see the patient?

We are really busy here. We have 15 patients all of them are critical.

I feel that we are not getting anywhere. Maybe we should both think about the situation and can I call back in 5 min. Is that OK?

If no beds

Would you need me to talk with the bed manager and arrange beds for you?

Not enough staff

Would you want me to send a staff for you to assist in your work?

Successful referral

OK. Thank you. I'm coming

Ok. Many thanks

Do you have a rough time frame when you will be able to make it down?

Unsuccessful referral

Sorry, I cannot come. We are so busy.

I don't think we are making any progress here. Is that ok if I call my consultant and ask him to contact your consultant? So that they can share the management regarding this patient

I need to document the time of referral, the accepting doctor details and contact number as well the agreed outcome.

Dr Marwan Kabir

Additional Data

DKA indications of admission in ICU

1. Blood ketones > 6
2. Bicarbonates < 5
3. Venous / arterial PH <7
4. Hypokalemia on admission - under 3.5 mmol/l
5. GCS less than 12 or abnormal AVPU scale
6. Saturation - below 92% on air assuming normal respiratory function
7. SBP - below 90 mmHg
8. DBP - over 100 / below 60 mmHg
9. Anion gap - above 16

Pneumonia management

CURB 65

C - Confusion - 1

U - Urea (> 7) - 1

R - Respiratory rate (> 30) -1

B - Blood pressure (< 90/60 mmHg) - 1

65 - Age > 65 - 1

Score -

0 - 1 - out patient management

2 - Inpatient management

> 3 - ICU admission

Chest pain assessment

TIMI score (Thrombolysis in MI)

History

- Age > /= 65 yrs. - 1
- >/= 3 risk factors - 1
- Known coronary disease (stenosis >/= 50%) - 1
- Aspirin use in past days - 1

Dr Marwan Kabir

Presentation

- Recent (</= 24 hr.) sever angina - 1
- ST segment deviation >/= 0.5 mm - 1
- Increased cardiac enzymes - 1

TIMI score considered High if score is >/= 3

HEART score

H - History -

- Highly suspicious - 2
- Moderately suspicious - 1
- Non suspicious - 0

E - ECG

- Significant ST deviation - 2
- Nonspecific repolarization - 1
- Normal - 0

A - Age

- >/= 65 yrs. - 2
- > 45 - < 65 yrs. - 1
- </= 45 yrs. - 0

R - Risk factors (DM, Recent smoker, HT, DLP, Family history, Obesity)

- >/= 3 risk factors - 2
- 1/2 risk factors - 1
- No risk factors - 0

T - Troponin

- >/= 3 times normal limit - 2
- >/= 1 to </= 3 times normal limit - 2
- Normal - 0

Score interpretation

0 - 3 = 1.7% major acute coronary event in next 6 months

4 - 6 = 16.6% major acute coronary event in next 6 months

7 - 10 = 50.1% major acute coronary event in next 6 months

Dr Marwan Kabir

Grace score Interpretation

Risk Categorization	GRACE Score	Mortality
Low risk	<108	<1% (in hospital)
	<88	<3% (6 months after discharge)
Intermediate risk	109-140	1-3% (in hospital)
	89-118	3-8% (6 months after discharge)
High risk	>140	>3% (in hospital)
	>118	>8% (6 months after discharge)

Dr Marwan Kau

Counseling and advice.

1. Post exposure prophylaxis after sexual intercourse
2. Post exposure prophylaxis needle stick injury
3. Post exposure prophylaxis after blood splash
4. Pregnant mother and child with chicken pox

Post exposure prophylaxis

Knock the door.

I need to wash my hands and wear my PPE.

Good morning, I am Dr Marwan senior ED registrar. May I know your name and age please?

Nice to meet you Mr..... I have been informed that you a urethral discharge. /you are here to talk regarding post exposure prophylaxis. Is that right?

Oh. I'm so sorry to hear that. I need to take some data from you regarding your sexual history. This is going to involve me asking some personal questions in a privet room. These are questions we asked from every one and anything you would tell me will be confidential. If you would prefer not to answer a particular question or want to stop the consultation at any time you can let me know. would that be ok with you?

Did anyone attend with you?

Would you mind a nurse attend with us as a chaperone?

Are you comfortable? Do you have any pain?

If urethral discharge

I need to check your vital signs including temperature? - (vitals normal, temperature 39)

I need to take you to isolation room. Do you have any allergies, because I want to give you 1g od PCM per oral to lower your temperature? Is that ok with you?

Please miss..... can you give 1g PCM oral?

Open question

Can you tell me more about your urethral discharge? (if coming with symptoms)

Dr Marwan Kabir

What is your concern regarding PEP? What is your idea and what do you expect from us? (If asymptomatic)

Presenting complains

- **O**- How did this start? sudden or gradual?
- **D** - When did this start? do you still have urethral discharge?
- **I**- Is it affecting activities of daily living? How often till now? Any chance you can score your urethral discharge from 1 - 10 and 10 being the worst.
- **P** - Is it related to specific time? Is it continuing or on and off? Is it worsening, improving or the same?
- **P** - Did you have any same episodes before?
- **A** - Does anything worsen it?
- **A** - Rest of the system only urogenital, and GIT

Do you have any difficulty in passing urine/ frequent urination? was there any blood in urine?

Do you have any abdominal pain?

(ODIPPARA system analysts not used in sexual history, psychiatric history & explain new diagnosis)

Sexual history

- Can you explain more about this last sexual act?
- Do you have any symptoms now? – if symptoms – go as ODIPPARA
- When was the last sexual act?
- Are you on stable relationship?
- Is this sexual encounter with your regular partner or other?
- How many of them?
- Male or female or both?
- Do you know them? By any chance, do they have diagnosed with HIV?
- Are the partners outside from country?
- Is it vaginal, anal or oral sex?
- If anal – are you on receiving end of sex?
- Was this sexual encounter consensual?
- Was it protected sex like condom?
- Were you by any chance under effect of alcohol or any illicit drugs?
- You said you are in stable relationship. So, are you trying to get your partner pregnant?
- Have you or your partner ever been tested or diagnosed for HIV or another STD?
- Would you like to be tested? If no - I'm sorry, you won't be given post exposure prophylaxis. You will also need an HIV test after the treatment, to check that it's been successful.
- Anything else about your sexual practices which I need to know to ensure your good health.

Management plan

If there is symptoms

- Mr..... We need to keep you is Isolation room, check your vitals and do general examination and examine your tommy, penis, testicle and anal canal wall and I would like to run some tests like blood biochemistry, blood gases, urine test, urethral swab to figure out exact cause of your symptoms and discuss regarding PPE. Is that Ok for you?

Dr Nawan Kabir

- Then I will start antibiotics and after that we will arrange appointment with genitourinary clinic for follow up and you should notify your sex partners and you should avoid blood transfusion or avoid sexual intercourse or at lease wear condom.

For counselling/ asymptomatic.

From the data you gave me. I'm sorry to tell you that you are in high risk to get sexually transmitted disease like HIV, Hep B and C

If present within 72 hrs.

But good news is you have come early, because you have come within 72 yrs. of last sexual contact where we can start post exposure prophylaxis, which you have to take for 4 weeks. PEP is effective in preventing HIV infection only when it is taken correctly, but is not 100% effective. Using a condom is the best way to prevent spread of STD including HIV. PEP can cause side effects such as tiredness, diarrhea, nausea, vomiting and feeling generally unwell. They usually start to get better as you keep taking PEP.

For hep B - as you are not immunized against it, I would like to offer you hep B immunoglobulin and refer you to the immunization clinic to get the relevant vaccinations.

For hep - C, there is no recommended post exposure prophylaxis

If present after 72 hrs.

Sorry to say that you have come after 72 hrs. of sexual behavior and the PEP is not effective. So, we cannot offer you PEP. But we will do blood test for hep - B, C and HIV. And if they are positive, we will do active treatment. If negative we need to repeat the test after 12 weeks to confirm the negativity.

Needle Stick Injury

1. Introduction

First aid

Did you irrigate the wound with clean water, saline sterile irrigate? Did you encourage bleeding?

2. ICE

What do you think regarding needle stick injury? What is your concern? What do you expect from us?

I appreciate your concern. But I will tell you the risk of transmission regarding HIV is 1: 300, for Hep C is 1: 30 and for Hep B is 1: 3.

I need to take some data from you to seen whether you are high risk or low risk?

(For blood splash. Relax If this is a needle stick injury the risk is for transmission of HIV is 1:300 and for hep C is 1: 30 and for hep B is 1: 3. I have good news for you that transmission from this kind of contact is lower than this. Ask about recipient and donor only)

3. Injury details

- Whether the exposure occur through needle stick or another sharp instrument?
- What about the needle? Large/ wider/ small?
- Was there visible blood in the needle? Was the needle in artery or vain?
    - High risk if it is in artery or vain
- When did this happened? and which department?
- What procedure had been there when this happen?
- What is the amount of blood?

4. About donor

- Do you have any idea about the donor?
- If don't know - Is he still in war or discharged?
    - I will check his notes/ I will ask the doctor in his ward to check his notes to whether he is high risk or low risk?
    - Donors status in not known is a low risk factor for transmission.
- If knows about the donor
    - How much do you know about the donor?
    - Is the donor being from outside UK or from UK? What is the gender?
    - Is the donor known to have a blood born viruses like hep B, C or HIV or any active liver disease, IV drug user, recipient of blood product or organ or from country with high prevalence of blood born viral disease or homosexual men?

5. Recipient history

- Where wearing PEP when this is happening?
- Are you immunized against hep B? If yes 0 Do you know your antibody status?
- Are you pregnant?
- When was you LMP?
- Do you have previous surgery to eyes, nose, mouth?
- Are you currently wearing contact lenses?
- Do you smoke, drink alcohol or by any chance do you use any illicit drugs?

Risk assessment

- The risk of transmission which might be mild, moderate or high which depends on donor data, recipient data, injury data and immunization status of the recipient and donor and blood status of recipient and donor

Management plan

- Incident form
- Sick leave today
- Refer to occupational health
- Advice not to donate blood and not have sex

Dr Nawaf Kabir

- PEP is given after risk assessment of the donor. If donor is negative, do not need any postexposure prophylaxis.

I need to take detailed data from the donor which may be most appropriately performed by the ward doctor, after consent from donor.

I need to routine blood test for you for beta HCG, and determine hep B antibody titer and serum served for possible future baseline HIV/ HCV testing.

The donor blood should be sent for hep B antigen, Hep C testing after consent from the donor.

PEP regarding Hep B

Regarding HBV: If you are not immunized against hep B, you will require discussion with a local specialist and may need Hep B immunoglobulin and a course of immunization commenced.

Regarding HIV: If the risk falls to be high you should be consented and commenced as soon as possible on PEP. This mainly involves combination of therapy for 4 weeks. Nausea and vomiting and diarrhea are the common side effects and prepared PEP capsules often contains antiemetics.

Regarding HCV: There is no effective prophylaxis against Hep C.

I will give you leave today and I will write incident form regarding this matter.

Follow up

I will arrange follow up with occupational health department the following day for further assessment and appropriate counselling.

In the mean time you should use barrier contraceptives and avoid blood transfusion.

End

Did you understand what I have told you?

Is our management plan ok for you?

Do you have any further questions?

Thank you

I need to dispose my PPE and wash my hands.

Dr Nalwan Kaur

Pregnant mother with contact of Chickenpox

Introduction

Counselling

How can I help you?

My son had rashes and GP said he has chickenpox.

I am sorry to hear that. What is your concern?

OK. 1st are you pregnant? yes 24 weeks

Mrs..... I appreciate your concern. Now I will give you information about chicken pox and the end I will give you website and videos to guide you more ad plan. Feel free to ask me any time any question if you wanted. Is that ok for you?

Chicken pox is very infectious illness caused by a virus called Herpes zoster. Once you have had chicken pox, you cannot catch it a second time. This is called being immune to it.

What are the symptoms?

Fever and feeling unwell. Watery itchy blisters, after few days the blisters bursts crus over and then heal. This may take up to 2 weeks.

Is shingles same as chicken pox?

After someone had chicken pox, the virus stays in your body and can become active later and that time it causes Shingles. Shingles is a patch of itchy blisters on the skin.

How do we catch chicken pox?

A person contiguous for 2 days before the rash appears to where all the blisters have crust over. If we are close contact with them, face to face with them for at least 5 min, in the same room for at least for 15 min.

Is there chicken pox vaccination?

If you have not hold chicken pox, you can be vaccinated against it when you are not pregnant. The vaccination cannot be given in pregnancy and you should avoid getting pregnant for at least 3 months after vaccination. If you are not immune to chicken pox during the pregnancy, vaccination would be after the birth of your baby.

What if I encounter chicken pox when I am pregnant?

Dr Marwan Kabir

If you are immune to chicken pox you do not need to worry and no need to do anything. But if you have never had chicken pox or not know, you can have a blood test to find out if you are immune.

What if I encounter chicken pox when I am pregnant and I am not immune?

If you are not immune and encounter during pregnancy, you may be given an injection of varicella zoster immunoglobulin. This is a human blood product which strengthen the immune system for a 2-short time, but does not necessarily prevent chicken pox developing. VZIG can make the infection milder and not last for as long. The injection can be given for up to 10 days after your encounter with chicken pox and before any of your symptoms appear. VZIG does not work once you have blisters.

What if I have VZIG and encounter chicken pox again?

A second dose of VZIG should be given if you have encounter chicken pox and it is 3 weeks or longer since your last injection.

What could chicken pox mean for my baby during pregnancy and after birth?

Only very small number of women catch chicken pox during pregnancy in UK. Even fewer babies are affected in the uterus. The risk of a baby catching chicken pox depends on what stage in pregnancy you catch it.

If you catch chicken pox

- Before 28 weeks

There is no evidence that you are at an increased risk of early miscarriage because of chicken pox. Damage can occur to eyes, lungs, ears, brain, bladder or bowel in 1- 2 of every 100 babies. (1 - 2%)

you will be referred to a fetal medicine specialist for USS and discussion about possible outcome and further risks.

- Between 28 - 36 weeks

The virus stays in the baby's body and will not cause any symptoms. But it may become active again causing shingles in the first few years of life.

- After 36 weeks

The baby may become infected and would be born with chicken pox.

- Around the time of birth

If the baby born within 7 days of your chicken pox rash appearing, the baby may get sever chicken pox. the baby will be treated

- Up to 7 day after birth

The baby may get sever chicken pox and baby will be treated. The baby will be monitored for 20 days after you become infected. Is safe to breast feed if you have or have had chicken pox during pregnancy.

Can I be treated if develop chicken pox during pregnancy?

Dr Manvan Kaur

You can be given and antiviral drug called acyclovir within 24 hrs. of the chicken pox rash appearing. this will reduce fever and symptoms. Acyclovir is only recommended when you are more than 20 weeks pregnant. No medications during pregnancy is without its risk and these will be discussed with you. Once you have chicken pox, there is no treatment that can prevent your baby from getting chicken pox in the uterus.

What could chicken pox mean for me in pregnancy?

Complications such as chest infection (pneumonia), inflammation of the liver (hepatitis), and inflammation of the brain (encephalitis). Very rarely, women can die from complications. You are at greater risk of getting complication if you smoke cigarettes, have a lung disease such as bronchitis or emphysema and taking steroids or have done so in last 3 months, are more than 20 weeks of pregnancy.

When should I be referred to hospital if I have chicken pox?

Your GP should refer you if you have signs and complications (chest and breathing problems, headache, drowsiness, vomiting or feeling sick, vaginal bleeding, a rash that is bleeding, a sever rash, I you are immune suppressed. If you need to be admitted to hospital, you will be nursed in a side room away from babies and pregnant women.

When should I give birth If I have chicken pox in pregnancy?

The timing will depend on your own circumstances. It is best to wait until the chicken pox is over, to let you recover. This will also give a chance for your immunity to pass to the baby. if you are very ill with chicken pox, particularly with any of the complications, your obstetrician will discuss whether you should have the baby early.

What if my new born baby has encounter chicken pox?

If your newborn baby has chicken pox in the first 7 days of life and you are immune, then the baby will be protected by your immunity and there is nothing to worry about. If you are not immune, then baby may be given VZIG.

What should I do if I encounter shingles?

If you are immune to chicken pox, no need to worry. If you not immune, then the risk of getting chicken pox from someone with shingles on a covered part of the body, is very small. If the shingles is wide spread (such as face or eye) there is risk of chicken pox infection you when the blisters re active and until they are crusted over

What should I do if I develop shingles during pregnancy?

It is usually mild and there is no risk for you or your baby.

Do you have any further question?

Communication station – Conflict resolution

Angry patient or relative: Request or refusal of management

1. Mother: request antibiotics for sore throat with viral infection
2. Mother: refusing tetanus immunization after rabbit bite at hand
3. Mother refuses discharge: vomiting child because her concern is appendicitis
4. Mother: refuse discharge and request X – ray: limping child, her concern 'Perthes disease (age 4-10yrs)'
5. Patient: back pain refuse discharge on ibuprofen
6. Patient: leg pain refuse discharge on ibuprofen

Complaint: Angry patient or relative

1. Complaint from mother: missed diagnosis, Pneumothorax, Lisfranc fracture, or Perthes/ SUFH avascular necrosis)
2. Complaint from mother: MAP
3. Complaint from mother DNA CPR

Requesting antibiotics for viral infection

Components

- Introduction
- ICE
- Explanation – brief data
- Management

1. Introduction

I would ensure that the department is safe and handed over to the colleague, quiet and privet location, a senior staff nurse present to assist the patient

Good morning, I'm Dr. Marwan, one of ED registrar, may I know your name and relationship to the patient please?

I have been informed that you are having concerns you would like to discuss regarding .....

How is .....now? Is she comfortable?

Shall we move to a privet room to discuss?

Do you want your wife or anyone to attend with you?

Dr Marwan Kabir

Would you mind if a staff nurse attend with us?

before we start, can I offer you a drink or anything else.

Mrs..... have a seat please

2. Explanation

- ICE

Please can you tell me what you are concerned and unhappy about?

- Acknowledge the concern

Thank you for informing me this. Let me just summarize what you have said, so I can ensure I understood your concern

your daughter .....is 3 yrs. old who has presented with her mother complaining of painful throat and runny nose, cough and high fever. She is diagnosed with throat infection and you need some antibiotics for her. Is that right?

Can you tell me more about your concern?

Where is your daughter now?

- Explore

Why do you think .. needs antibiotics/

---------cousin had same illness 2 yrs. ago and diagnosed meningitis

I'm sorry to hear that. How is she now?

Let me ask you some question so that I can whether your child have any serious diagnosis?

SOCRATAS, Most relevant system (ENT, GIT, Respi) Any past medical, surgical, allergy, medication, immunization history?

- Further support and actions

..... has symptoms of runny nose, cough without pus and they indicate a viral infection which will get better without antibiotics

Would you let me to explain bit more?

The guideline advice immediate antibiotics for patients for those who

- ✓ Systemically very unwell
- ✓ Pneumonia or peritonsillar abscess
- ✓ Significant heart, lung, liver, neuromuscular disease

Dr Manwan Kaur

- ✓ Are > 65 yrs. old with acute cough and two of or over 80yrs with acute cough and one of - hospitalization in past 1 yr., DM, congestive heart failure or taking oral glucocorticoids)

Guideline suggests immediate antibiotics considered for

- ✓ Children younger than 2 yrs. old with bacterial otitis media
- ✓ Children with otorrhea who have acute otitis media
- ✓ Patient with acute sore throat/ acute pharyngitis/ acute tonsillitis with 3 or more Center criteria - (tonsillar exudates, tender anterior cervical lymphadenopathy, absence of cough and history of fever)

So, I think you agree with me for the safety of ..... antibiotics are not needed immediately because of little difference to symptoms and may have side effects

If you feel like the symptoms are not settling or getting worsening, you can come again for ant need of antibiotics

I'm very busy and it is difficult to take time off to run around visiting GP every few days

I will offer delayed prescription and it can be offered if symptoms do not settle or get significantly worse. I will give you advice leaflets how to manage symptoms and which symptoms needs further medical assistance

End

Did you understand?

Do you have any questions?

Thank you

For concern with vomiting and appendicitis

Introduction

ICE

Why you don't want to get discharged? What is your concern?

Take data

ODIPPARA, GIT, GUT, CNS (Head injury), musculoskeletal system

Dr Marwan Kabir

Management

According to your data, there is no worrying symptoms. So, I am discharging with painkillers, medicine for vomiting and printed leaflets.

Alvarado score

Signs

- Right lower quadrant tenderness - 2
- Elevated temperature (<99.1 F) - 1
- Rebound tenderness - 1

Symptoms

- Anorexia - 1
- Nausea and vomiting - 1
- Migration of pain to right lower quadrant - 1

Laboratory

- Leukocytosis (>10,000 WBC) - 2
- Left shift > 75% neutrophils - 1

Interpretation

1 - 4 - discharge

5 - 6 - observation/ antibiotics

7 - 10 - surgery

Refusing Immunization

- Introduction
- ICE
- Take data
- Indication
- Contraindication
- Complications
- Consent

Answer mothers' questions correctly

1. What is Tetanus?
2. What is in the injection?
3. Is there a risk of seizures?

Dr Marwan Kabir

4. Are there any side effects?
5. Can it be delayed while she can think about it?

Approach is Introduction and Explanations are same

ICE

What is your concern regarding giving immunization

Take data

- Ask about what happened (incident)
- Past medical disease, surgical and medication, history of immunization

Further support and actions

Mrs....., ...has rabbit bite at hand and she has a risk of tetanus infection. Do you have any idea about tetanus infection?

Tetanus is a serious disease. It results from infection with Clostridium tetani which releases tetanus toxin.

Do you know how tetanus infection occur?

Infection occur when the bacteria breach the skin like laceration, puncture, wounds, burns and bites

Do you have idea about tetanus vaccination?

Tetanus vaccination is made from a cell free purified toxin from Clostridium tetani. These vaccines are not live and there for cannot cause their response disease.

In UK there are 5 doses are typically given at 2, 3 and 4 months old. 3 yrs. later (preschool, 3 - 5 yrs. old), 13 - 15 yrs. old

Reactions and contraindications

The only absolute contraindication to receiving vaccine is anaphylaxis to a previous dose or to neomycin or streptomycin

True anaphylaxis is estimated to occur < 3 in million cases

During an acute illness it is advised that the vaccine should not be administered

Other reactions may include fever, prolong crying (>3hrs), sever local reactions

How to treat the contraindications

A febrile seizure may be caused by the fever caused by the vaccinations and that should be treated as normal febrile seizures

Dr Marwan Kabir

The risk of getting serious infection is more than she is getting minor reactions. Because, if she gets the infection, she will have impact on her brain and heart. If we compare the risk and benefit, I will advise you to take the immunization as it is the best interest of your daughter.

So, do you agree to get the immunization.?

If patient disagrees – ask about the mental capcity.

Missed diagnosis

1. Primary or Secondary pneumothorax
2. Lisfranc Fracture
3. Slipped upper femoral epiphysis
4. Missed critical medication (Parkinson's disease)

General approach

- Introduction
- ICE
- Medical aspect
- Legal aspect
    - I will make incident form
    - I will let the consultant aware about the problem
    - I assure you that we will take the incident seriously
    - I will discuss this issue with the concerned colleague to search the reason behind that
    - I will inform/ involve his clinical supervisor
    - I will revive all patients' records seen by him
    - I will make departmental meetings
    - Publishing in social media – It will affect NHS trust, it will affect all doctors. I assure you, we will take this seriously.

1. Introduction

I would ensure that the department is safe and handed over to the colleague, quiet and privet location, a senior staff nurse present to assist the patient

Good morning, I'm Dr. Marwan, one of ED registrar, may I know your name and relationship to the patient please?

I have been informed that you are having concerns you would like to discuss regarding your/ your sons' condition. Is that right?

How is .....now? Is she comfortable?

Shall we move to a privet room to discuss?

Dr Marwan Kabir

Do you want your wife or anyone to attend with you?

Would you mind if a staff nurse attend with us?

before we start, can I offer you a drink or anything else.

Mrs..... have a seat please

2. ICE

Can you tell me what you know about your disease? / Please can you tell me what you are concerned and unhappy about?

What do you expect us to do for you.

3. Acknowledge the Concern

Sorry to hear that, thank you for informing me this. Let me summarize what you have said, so that I can ensure that I understood your concern.

Your son ..... 21 yrs. old presented with mid foot ecchymosis after a fall from the horse. He was discharged yesterday. Today you received a call regarding the foot x-ray which shows foot fracture. That's why you are so worried. is that right?

4. Further support and action

1st- medical aspect

If angry patient:

1. Pneumothorax
    - Yeah you are right. I am so sorry to tell you that there is an air leak in this x-ray. Let me take you to the resuscitation room and observe your vitals. Connect you to the heart monitor to make sure you are ok. Let me give you some oxygen. Do you feel better now? Can I ask you few questions so that we can know what causes this leak.?
    - Do have any past medical history? Did you have any trauma? Sorry to ask you this, but do you smoke?
        i. If > 2cm: As this air leak is due to secondary cause / or more than 2cm – we need to put on a chest tube / aspirate the air from the lung so you will feel better. Is that ok for you?

        ii. This air leak is caused by spontaneous, but I am happy to tell you that it is less than 2cm which does not need any intervention now as you are vitally stable. We will arrange another follow up x-ray in 2 weeks to whether this air leak has resolved spontaneously. Is that ok for you?
    - Do you feel better now?

Dr Marwan Kabir

2. Lisfranc fracture

    - Yeah.... you are right there is fracture in the mid foot. Do you want me to show you the fracture? This is called Lisfranc fracture which does need intervention now. I will arrange referral to orthopedic consultation to do surgery which is called open reduction and internal fixation. Does that sound reasonable to you?

3. Slipped upper femoral epiphysis (>10yrs) / Perthes disease (<10yrs)

    - Yeah you are right. There are some changes in this x-ray do you see. This is caused by reduced blood supply to this bone which is called necrosis. This needs intervention now. I will arrange orthopedic consultation for further assessment and management. Is that ok for you?

Secondly - Legal aspect

My concern now is what will you do with your colleague?

I appreciate your concern. I want to reassure you that we take your concern very seriously and this incident / issue will be looked formally. We will make an incident form and ensure the consultant is aware. I will discuss with my colleague why this incidence has happened.

Will they fire you colleague?

I appreciate your concern. We will make departmental meeting and make sure all the doctors aware about this including the involved doctor also. We will make sure this will not happen in future.

What will happen to the patients who were seen by your colleague before? I am sure they are dead by now/ lost their limb.

I am the most senior here and I assure you that we have a system which have all the records and I will go through all the patient seen by my colleague case by case. Does that sound reasonable to you?

What happens if he continues to see more patient like this?

I assure you that all patients seen by the junior doctors will be revived by the senior doctors and we will try our best, incident like this not to happen like this in future.

I will publish this in social media

I assure you that we will take this incident very seriously. We are here to help you and support you. Posting this in social media will affect the NHS trust. It will affect lot of doctors who are not involved in this and it will affect a lot of patients. Do you agree with me on this?

Do you have any question?

I want to file a complain

Dr Manan Kaul

I appreciate your decition You have all the right to make a complain. I will refer you to the complain team. This incident will be acknowledged and a resolution meeting will be offered and we will give you feedback within 3 days' time. Is that ok for you?

Did you understand so far?

Do you have any questions?

I need to dispose my PPE and wash my hands.

Conflict resolution - DNA CPR

Introduction

I would ensure that the department is safe and handed over to the colleague, quiet and privet location, a senior staff nurse present to assist the patient

Good morning, I'm Dr.MARWAN, one of ED registrar, may I know your name and relationship to the patient please?

I have been informed that you are having concerns you would like to discuss regarding your/ your sons' condition. Is that right?

How is .....now? Is she comfortable?

Shall we move to a privet room to discuss?

Do you want your wife or anyone to attend with you?

Would you mind if a staff nurse attends with us?

before we start, can I offer you a drink or anything else.

Mrs..... have a seat please

Explanations

1. ICE

Mrs..... please can you tell me what you are concerned and unhappy about?

My mother, Mrs. Olivia is 65 yrs. old presented with collapse 3 days ago. I called the ambulance, they brought her to ER and admitted her to ITU. I received a call from the hospital today informing me that decision of DNA CPR had been made. I am so worried.

2. Acknowledge the concern

Sorry to hear that, thank you for informing me this. Let me summarize what you have told me so far so that I can assure that I have understood properly. Your mother Mrs. Olivia presented with

DrMarwan Kabir

collapse 3 days ago, you called the ambulance and they brought her to ER and admitted to ITU. You received a call from the hospital today informing you decision of DNA CPR has been made. Is that right?

They don't want to give ger treatment anymore/ no further resuscitation.

3. Further explanation

Would you like me to explain more regarding this?

Do You have any idea about DNA CPR?

- DNA CPR is Do Not Attend Cardio Pulmonary Resuscitation.

Do you know What is resuscitation?

- Resuscitation is that we compress the chest and give air to the lungs to make the heart to pump again. We do this when we think that there is chance of getting the heart work again.
- In your mothers' case, we have attempted CPR 3 times as she went to cardiac arrest- that is stopping of heart 3 times. We took the decision of not attempting CPR again as the outcome is going to be poor quality. Do you Understand?

Did you take her consent?

- She is in critical condition. She has a tube in her throat. In this situation, we can take as a clinical decision and the best interest of the patient we take this decision

But why don't you give her treatment?

- We will give her IV fluid, medications whenever she wants. But will not attempt to CPR if her heart stops again.

Why do you take this decision?

- She is in critical condition and she is not responding to medicine to support her heart and the heart now is very weak and her blood pressure not improving even with mediations. We are expecting her that she will deteriorate and her heart will stop again. That's why we took this decision.

What if I refuse?

- This is a clinical decision by law. But you agree with me that we don't want any more trauma to the patient Maybe she will be very poor outcome.
- May be, but because of low O2 due to low blood pressure her lungs, brain, heart, liver and kidneys will not work like before. There will be bleeding in to the chest and there will be rib fractures and the outcome will be very poor.

I want to transfer her to another hospital.

- Her breathing is supported by a machine and she is on medication to pump her heart. She is not in good condition to transfer her to another hospital. Also, in any hospital we follow the same protocol and the management will be the same. And they will have the same decision. Do you understand?

Do you have any questions?

But I want to take a second opinion for this?

- Yeah. you have the right to take 2nd opinion. I can give you all the reports and notes of you mother and you can consult cardiology consultant who made the decision for your mother.

Do you understand so far.?

Do you have any further questions?

I would like to dispose my PPE and wash my hands.

Complaint from a mother – Morning After Pill

- Good morning all, I will be in quiet room
- Ensure the department is safely handed over to colleague
- Make sure the environment is quiet and a senior nurse attend.
- Any notes of the patient

Hallo I am Dr, Marwan, May I know your name and relation to Miss…. Please?

Nice to meet you Mrs…. I have been informed that you are upset and angry. Is that right?

I am sorry for that. Do you have a family member or friend to attend with you?

Would you mind if we sit in a privet room and our head nurse attend with us?

Have seat, please. How Can I help you?

My daughter present to the hospital today and had been prescribed morning after pill and she is unwell at home. She felt sick, vomiting, and had a tummy pain.

I am sorry for that; any one at home can bring her here, so that we can give her treatment?

Yes please, how is your colleague prescribe to her Morning after pill and she is only 15 yrs.?

I am sorry to ask you this question, but for …… confidentiality, I've to know if she informed you in personal?

Yes, she informed me.

DrMarwanKabir

Mrs……. Could you tell how much do you know so far about ……condition?

She told me that she came to the hospital in the morning with concern of pregnancy and unfortunately your colleague gave her MAP without informing me.

Indication for MAP

- Unprotected sexual act within 72hrs.
- Gillick competence and Fraser guidelines
    - Gillick competence
        - Patient understands
        - Can weigh information
        - Can retain information
        - Can communicate the decision
    - Fraser criteria
        - Gillick competence
        - She cannot be persuaded to tell her parents and allow the doctor to tell them
        - She is very likely to begin or continue having sexual intercourse with or without MAP
        - Her physical or mental health is likely to suffer unless she receives morning after pill
        - MAP is in patients' best interest

1. I have seen ……. file notes here. She presented in the morning 8 am with anxiety and her concern was pregnancy after she had an unprotected sex yesterday after her party. And her expectation from the doctor to give her MAP, because it should be given within 72 hrs. of unprotected sex.

2. Yes, I agree that she not adult. But in this situation, we have a criterion called Gillick competence. This says if the patient can understand, retain information and can weigh and communicate the decision, we can offer contraceptive treatment.

3. Regarding contraceptive pill, we have law called fresher guidelines which shows that
    - Our colleague cannot persuade her to call her parents and she refused to call her parents also.
    - Also, she is very likely to continue to do sexual intercourse with or without morning after pill.
    - Her mental health will be affected if we do not prescribe MAP
    - And you will agree with us that this is in her best interest.

Now I understand, she has vomited 1 hr. after taking the MAP. What should I do now?

Dr Nowan Kabir

Management plan

- We need to repeat the dose if she vomited within 3 hrs. of MAP
- A pregnancy test in the next 3 – 4 weeks unless period resume
- Her periods may come early or may be delayed by a few days.
- Return if further unprotected sexual intercourse occurs
- Would our management plan be ok with you?

Do you have any further questions?

Dr Marwan Kabir

Communication Skills – Miscellaneous

1. Consent from a source patient after needle stick injury
2. Clinical decision hand over
3. Difficult conversation with a colleague (smells alcohol/ not using hand washing or PPE/ Homophobic language)
4. (CNM) Certified nurse-midwife relative to family of NAI, try to convince her to talk with pediatrician
5. Major incident plan/ triage sieve

Major Incident Plan/Triage Sieve

Good morning all, wash your hands, Good morning I'm Dr Marwan ED registrar, may I know your name and level, please?

Nice to meet you DR……, I believe you have something to discuss with me today, is it right?

How much do you know so far about major incident plan?

Ok. Can you tell me about METHANE report?

METHANE:

M: Major incident (standby or declared) – Is it stand by/ declared/ stand down or cancelled?

Please inform all the doctors, line managers, all staffs and nurses and activate the major hemorrhagic protocol

E: Exact location – What is the exact location?

T: Type of incident?

H: Hazards (present and potential)

A: Access to scene – What about the access to scene? Will they come to us or do we have to go there?

N: Number and severity of casualties.

E: Emergency services present (how many rooms in ER and how many in staff available?)

Major incident plan

- Clear the ED of the current patients
    - All the stable patient waiting in the waiting area will be referred to there GP
    - Patients in 'majors 'or 'resuscitation' area can be transferred to ICU and medical ward according to their relevant specialty

How many beds we have now?

- I need securities to wait in the entry and exit to control the event.
- Divide the area into 4 areas
    - Red – resuscitation
    - Yellow – delayed

Dr Marwan Kabir

- Green – secondary triage
- Black – expectant or death

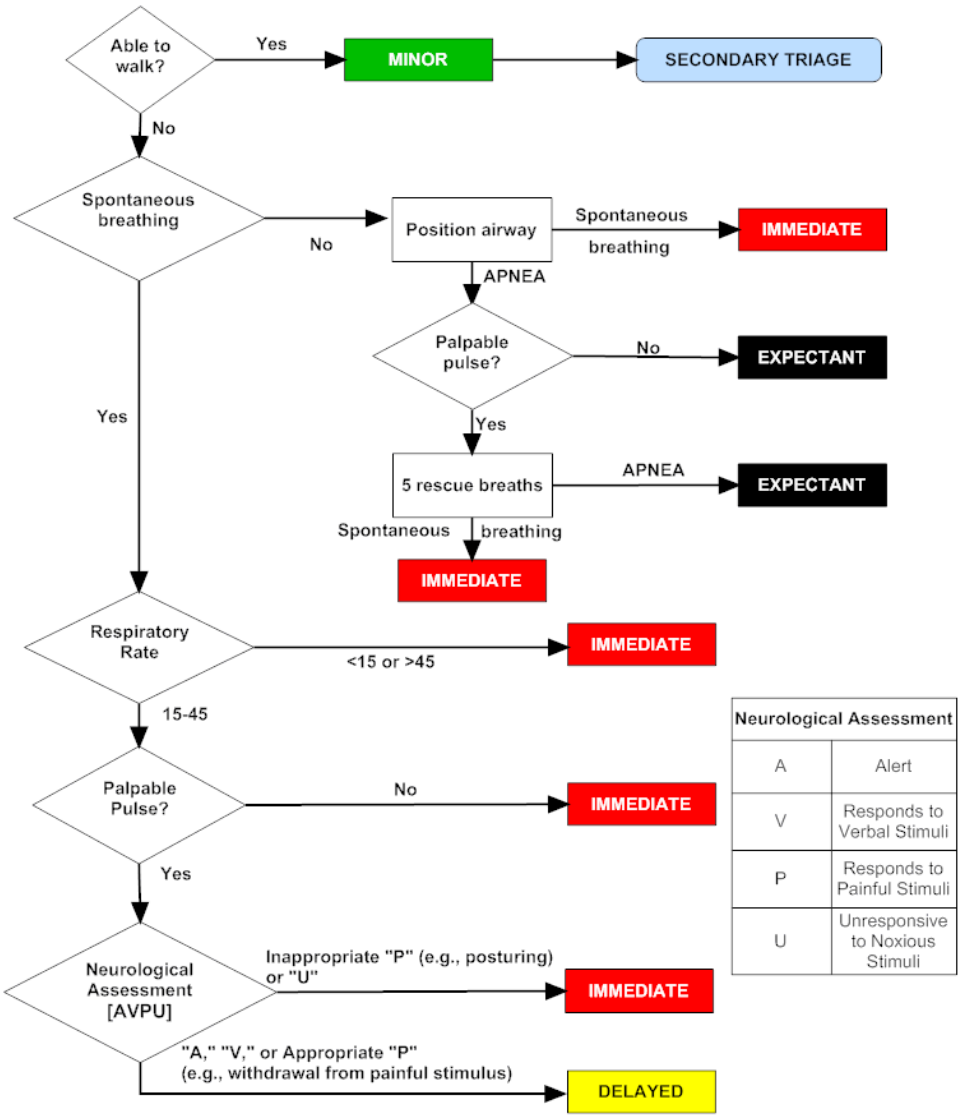
- I will assign roles and please give action plan cards.

Ambulance arrived

Triage Sieve:

Can you tell me the cases? –

For pediatric cases



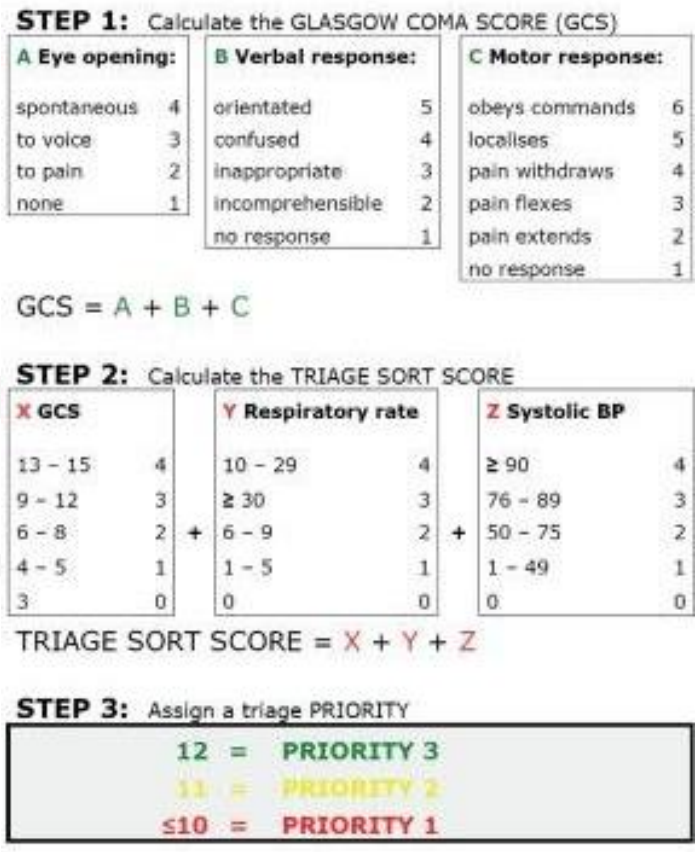
Eg:

- 5 patients able to walk – Move to the Green area.
- 10 patients not able to walk –
  - Do they have spontaneous breathing?
    - 5 of them not able to breath
      - Can you position the air way?

- After positioning 2 of them able to breath spontaneously – move them to Red area
- 3 of them after positioning – apnea
    - Is the palpable pulse?
    - 1 of them have no pulse – declare death
- 2 of them have palpable pulse
    - Give rescue breaths – is there spontaneous breathing?
        - If yes – move to red area
        - If no – move to death area

- 3 of them less than 15 / > 45 – move to Red area
- 2 of them RR – 20
    - Do they have palpable pulse?
        - If no – move to Red area
        - If yes – What is the AVPU score?
            - If inappropriate "P" (Posturing) – move to Red area
            - If "A", "V", or appropriate "P" (withdrawal from painful stimulus) – Move to Yellow area

For Adult cases



STEP 1: Calculate the GLASGOW COMA SCORE (GCS)

A Eye opening:		B Verbal response:		C Motor response:	
spontaneous	4	orientated	5	obeys commands	6
to voice	3	confused	4	localises	5
to pain	2	inappropriate	3	pain withdraws	4
none	1	incomprehensible	2	pain flexes	3
		no response	1	pain extends	2
				no response	1

GCS = A + B + C

STEP 2: Calculate the TRIAGE SORT SCORE

X GCS			Y Respiratory rate			Z Systolic BP	
13 – 15	4		10 – 29	4		≥ 90	4
9 – 12	3		≥ 30	3		76 – 89	3
6 – 8	2	+	6 – 9	2	+	50 – 75	2
4 – 5	1		1 – 5	1		1 – 49	1
3	0		0	0		0	0

TRIAGE SORT SCORE = X + Y + Z

STEP 3: Assign a triage PRIORITY

12	=	PRIORITY 3
11	=	PRIORITY 2
≤10	=	PRIORITY 1

Eg:

There are 5 patients

- GCS – 5, RR – 20, BP - > 90
    - Score – 9 – move to red area

Another 5 patients

- GCS – 10, RR – 20, Bp - > 90
    - Score – 11 – move to yellow

Another 2 patients

- GCS -15, RR – 12, BP - > 90
    - Score – 12 moves to green area

- Priority 1 (RED) – requiring immediate resuscitation.
- Priority 2 (YELLOW) - have serious but non-life-threatening injuries requiring urgent treatment.
- Priority 3 (GREEN) - have more simple injuries requiring minor or delayed treatment.
- Dead or going to die.

We have prioritized the patients. Now we can go for 2nd triage.

Thank you.

Prioritization and make Spaces

Good morning, I am Dr Marwan May I know your name and grade please?

Nice to meet you. I guess you have something to discuss?

Yes, we have 5 patients coming in ambulance.

Ok, we have to make spaces. How many beds available in our ER?

Difficult conversation with a colleague

This is challenging scenario which may arise in various OSCE or interview setting and explores how to deal with colleague who is unfit for work. The scenario could ask a candidate to speak to a clinician who appears to be intoxicated or is seen to be making dangerous clinical decisions. There is clear guidance from the General Medical council (GMC) stating that doctors must:

- Take prompt action if they think patient safety, dignity or comfort is being or may be seriously compromised.
- Protect patients from risk of harm posed by colleague's conduct, performance or health.
- Be clear, honest and objective about the reason for raising a concern about a colleague's health.

Before approaching

I will check old records of my colleague whether this is the first time or not

Good morning I'm Dr, Marwan senior ED registrar. may I know your name level please?

Nice to meet you Dr.....I need to discuss some personal issues that a nursing staff has informed me. So, are free now? do you have any patients you are attending? have you handed them over to your colleague?

Shall we move to a privet room to discuss?

Have a seat.

Shall I offer you a drink?

I have been informed that you have come to work with consuming alcohol. Is that correct?

Is this your first time?

We are here to help you and support you. Is there anything bothering you?

As you will agree with me that this kind of acts will affect patient safety. You may make any dangerous diagnosis to patients in this state of mind. Do you agree with me?

Do you have any social problems?

I understand. I can help you by get you some support groups to overcome your problems.

Will this be confidential? will inform GMC?

I will not assure you this this will be 100% confident as I have to inform this to the consultant and your supervisor. also need to make an incident reported, so that you will get a discussion regarding this. Does that sound reasonable to you?

Do you need any help?

If you agree with me, I can refer you to the drug and toxicology department to overcome this problem. They will not force you, but they will try to help you to overcome this problem. Is that ok with you?

I will give you one day off today so that you can have a rest and think about it.

Dr Marwan Kabir

Dr Marwan Kabir

Teaching and interpretation

ECG interpretation

Introduction

Hallo I am Dr. Marwan, ED registrar, May I know your name and level please?

Nice to meet you, I guess you have to discuss ECG interpretation with me. Is that right?

Great, So, where is the ECG?

May I know the whereabout of this patient and is he being taken care of?

Ok. Now How Much do you know so far?

Do you have any specific area you want to learn?

Let me set you some learning objectives

I will teach you about

1. Leads
2. Seconds
3. Squares
4. Waves
5. Heart rate
6. Heart rhythm
7. Heart axis
8. Diagnosis
9. Management

Leads

- You have 12 leads which are limb leads and chest leads. Limb leads are lead I, II, III, aVL, aVR, aVF. Chest leads are V1 – V6.

Seconds

- Each lead is 2.5s and last strip is 10s. It could be V1, Lead II, or V5

Squares

- Each large square – 0.2s It contains 5 small squares and each small square is 0.04s

Waves

- The normal wave P, QRS, T. P wave represents the atrial depolarization, QRS represent ventricular depolarization, T wave represent ventricular repolarization – If find any abnormality (mention in the same time)

Heart rate

- It is measured by 300 divided by RR big boxes. – Calculate the HR in the ECG

Dr Marwan Kabir

Heart rhythm

- Should be sinus rhythm and regular. P wave should be present. Hear the P wave is absent and regular rhythm

Heart Axis

- Check lead I and lead III.
- If you find R dominant in lead I and lead III – Its normal axis
- If the R dominant only in lead I and negative in lead III – Left axis deviation
- If the R dominant only in lead III and negative in lead I – Right axis deviation
- If in both leads R wave is negative – Extreme deviation
- Then comment about the axis

Diagnosis

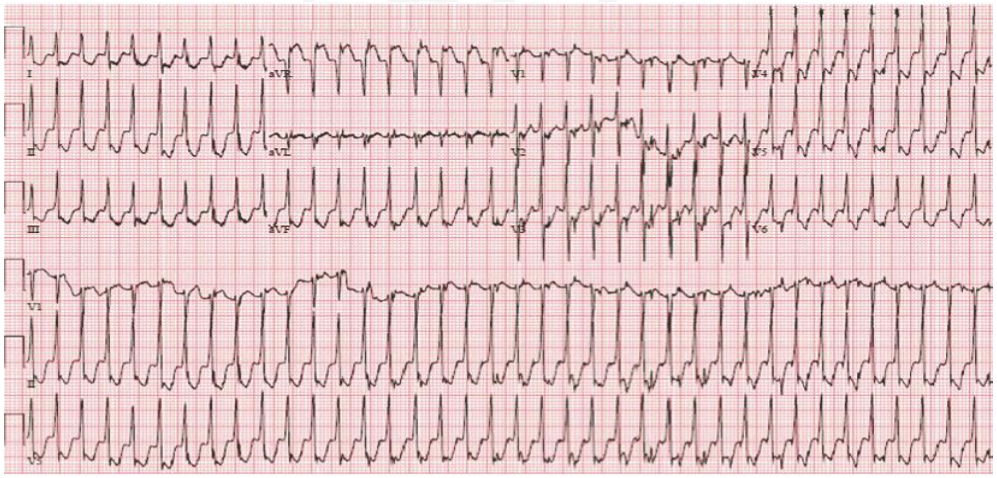
- This ECG is diagnosis and comment the findings

Management

- Keep the patient in the resuscitation area
- Connect to cardiac monitoring
- Collect blood for routine investigations and cardiac enzymes
- Call cardiologist
- Do examination for heart and lung
- Follow Tachy/ Brady cardiac algorhytham /specific management

---

Supraventricular Tachycardia



Leads

- You have 12 leads which are limb leads and chest leads. Limb leads are lead I, II, III, aVL, aVR, aVF. Chest leads are V1 – V6.

Seconds

- Each lead is 2.5s and last strip is 10s. It could be V1, Lead II, or V5

Squares

- Each large square – 0.2s It contains 5 small squares and each small square is 0.04s

Waves

- The normal wave P, QRS, T. P wave represents the atrial depolarization, QRS represent ventricular depolarization, T wave represent ventricular repolarization – If find any abnormality (mention in the same time)

This ECG does not have any P waves.

Heart rate

- It is measured by 300 divided by RR big boxes. – Calculate the HR in the ECG

In this ECG HR = 300/1.5 = 200bpm

Heart rhythm

- Should be sinus rhythm and regular. P wave should be present. Hear the P wave is absent and regular rhythm

In this ECG the rhythm is regular and there is absent P wave and QRS complex is narrow.

Heart Axis

- Check lead I and lead III.
- If you find R dominant in lead I and lead III – Its normal axis
- If the R dominant only in lead I and negative in lead III – Left axis deviation
- If the R dominant only in lead III and negative in lead I – Right axis deviation
- If in both leads R wave is negative – Extreme deviation

In this ECG the lead I and Lead III have dominant R wave – Axis is normal

Diagnosis

- This ECG is diagnosis and comment the findings

This ECG finding shows that this patient is having Supraventricular Tachycardia

Because the heart rate is > 150bpm and there is absent P waves with narrow QRS complex and regular rhythm

Management

- Keep the patient in the resuscitation area
- Connect to cardiac monitoring
- Collect blood for routine investigations and cardiac enzymes
- Call cardiologist
- Do examination for heart and lung

Dr Nawan Kabir

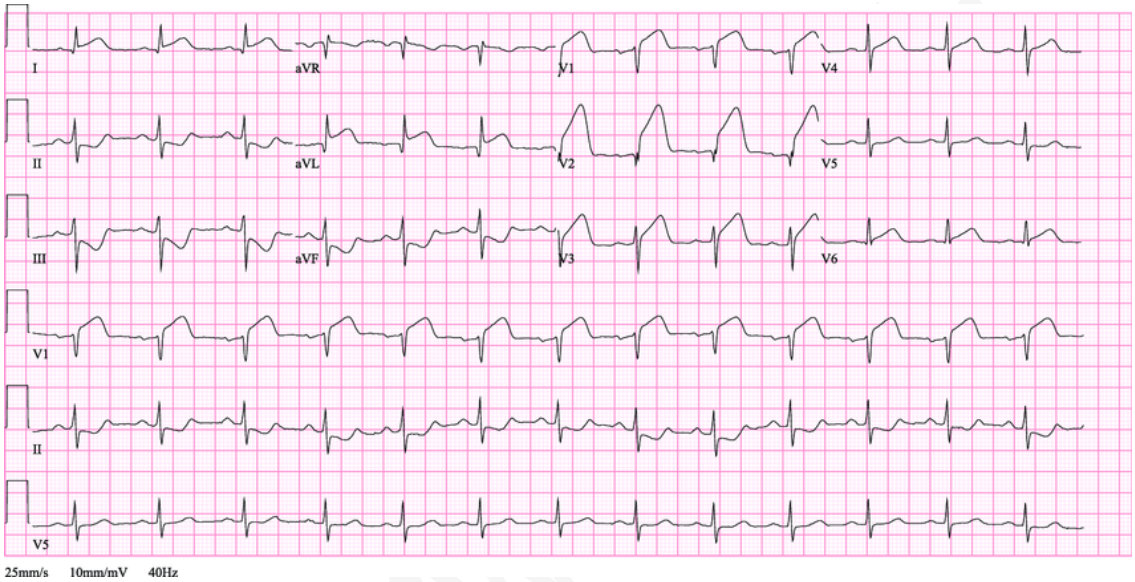
- Follow Tachy/ Brady cardiac algorhytham /specific management

With the above

If the patient is stable, I will do vagal maneuvers and if not responding we can give IV adenosine 6mg and then 12mg and then 18mg for total 36mg.

If the patient unstable I will give synchronized DC shock starting with 70 J up to 120 J

ST Elevation MI



Leads

- You have 12 leads which are limb leads and chest leads. Limb leads are lead I, II, III, aVL, aVR, aVF. Chest leads are V1 – V6.

Seconds

- Each lead is 2.5s and last strip is 10s. It could be V1, Lead II, or V5

Squares

- Each large square – 0.2s It contains 5 small squares and each small square is 0.04s

Waves

- The normal wave P, QRS, T. P wave represents the atrial depolarization, QRS represent ventricular depolarization, T wave represent ventricular repolarization

In this ECG the V4 to V6 the ST segment is in same level of the P wave. But In lead V1 – V4 the ST segment is elevated. In lead I and aVL the ST segment is elevated. In in Lead II and aVF it is below the line so it is ST depression. If you find ST elevation in some leads and ST depression in some leads, its confirming that its MI.

To diagnose MI – If you find 2 limb leads > 1mm deviation of ST segment and in chest leads > 2mm ST deviation, it is diagnostic of MI.

Also if ST depression >/= 0.5mm in 2 contagious leads indicate ST depression MI

Heart rate

- It is measured by 300 divided by RR big boxes. – Calculate the HR in the ECG

This patient HR = 300/4 = 75bpm

Heart rhythm

- Should be sinus rhythm and regular. P wave should be present. Hear the P wave is absent and regular rhythm

In this ECG the P is followed by the QRS complex.

Heart Axis

- Check lead I and lead III.
- If you find R dominant in lead I and lead III – Its normal axis
- If the R dominant only in lead I and negative in lead III – Left axis deviation
- If the R dominant only in lead III and negative in lead I – Right axis deviation
- If in both leads R wave is negative – Extreme deviation
- Then comment about the axis

In this ECG the in lead I shows positive R wave and lead III shows dominant S wave – So this is left axis deviation.

Diagnosis

- This ECG is diagnosis and comment the findings

This patient is having anteroseptal myocardial infarction, where there is ST segment elevation in lead I and aVL and V1 – V4. There is reciprocal ST segment depression in lead II, III and aVF

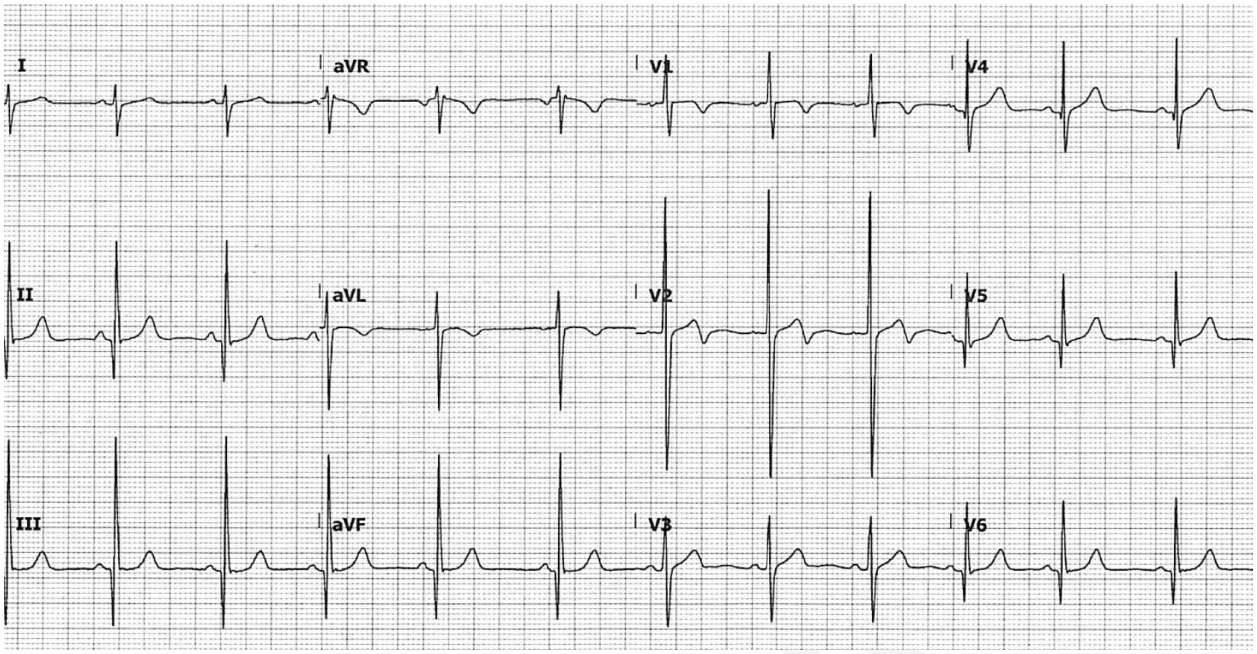
Management

- Keep the patient in the resuscitation area
- Connect to cardiac monitoring
- Do examination for heart and lung
- Collect blood for routine investigations and cardiac enzymes
- Call the cardiologist

Definitive management will be - give Asprin 300mg and Plavix 300mg and activate the cath-lab

Dr Marwan Kabir

Hypertrophic cardiomyopathy (HOCM)



Leads

- You have 12 leads which are limb leads and chest leads. Limb leads are lead I, II, III, aVL, aVR, aVF. Chest leads are V1 – V6.

Seconds

- Each lead is 2.5s and last strip is 10s. It could be V1, Lead II, or V5

Squares

- Each large square – 0.2s It contains 5 small squares and each small square is 0.04s

Waves

- The normal wave P, QRS, T. P wave represents the atrial depolarization, QRS represent ventricular depolarization, T wave represent ventricular repolarization – If find any abnormality (mention in the same time)

There are Q waves in lead II, III, and aVF. (in inferior leads) and there are deep S waves and tall R wave in in chest leads. Both of them are > 7 squares. (total 11 large box). This means LVH. And there is QRS is narrow. So this is diagnostic of HOCM. There is narrow QRS complex.

Heart rate

- It is measured by 300 divided by RR big boxes. – Calculate the HR in the ECG

Heart rate in this ECG is = 300/4.5 = 75bpm

Heart rhythm

- Should be sinus rhythm and regular. P wave should be present. Hear the P wave is absent and regular rhythm

This ECG having a normal sinus rhythm

Heart Axis

- Check lead I and lead III.
- If you find R dominant in lead I and lead III – Its normal axis
- If the R dominant only in lead I and negative in lead III – Left axis deviation
- If the R dominant only in lead III and negative in lead I – Right axis deviation
- If in both leads R wave is negative – Extreme deviation
- Then comment about the axis

In This ECG the lead I is negative R wave and lead III is positive R wave – Right axis deviation

Diagnosis

- This ECG is diagnosis and comment the findings

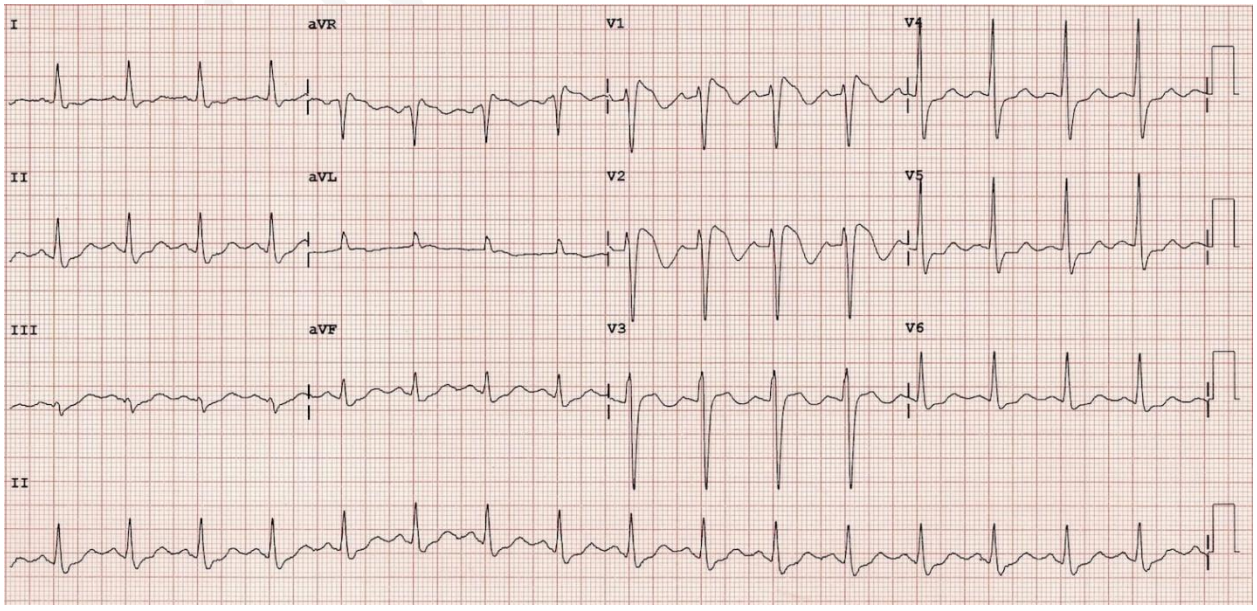
This is the diagnosis of HOVM. Where there are deep S waves and tall R wave in in chest leads. Both of them are > 7 squares. (total 11 large box). This means LVH. And there is QRS is narrow with deep Q waves in the inferior leads. This is criteria for hypertrophic obstructive cardiomyopathy.

Management

- Keep the patient in the resuscitation area
- Connect to cardiac monitoring
- Do examination for heart and lung
- Collect blood for routine investigations and cardiac enzymes
- Call cardiologist

This patient needs definitive management of cardiac surgery.

Brugada syndrome



Leads

- You have 12 leads which are limb leads and chest leads. Limb leads are lead I, II, III, aVL, aVR, aVF. Chest leads are V1 – V6.

Seconds

- Each lead is 2.5s and last strip is 10s. It could be V1, Lead II, or V5

Squares

- Each large square – 0.2s It contains 5 small squares and each small square is 0.04s

Waves

- The normal wave P, QRS, T. P wave represents the atrial depolarization, QRS represent ventricular depolarization, T wave represent ventricular repolarization – If find any abnormality (mention in the same time)

In this ECG there is the ST segment in lead V1 – V3 you can see some elevation with T wave depression and this is called down sloping ST elevation.

Heart rate

- It is measured by 300 divided by RR big boxes. – Calculate the HR in the ECG

In this ECG the HR = 300/3 = 100bpm

Heart rhythm

- Should be sinus rhythm and regular. P wave should be present. Hear the P wave is absent and regular rhythm

In this ECG this is normal regular sinus rhythm

Heart Axis

- Check lead I and lead III.
- If you find R dominant in lead I and lead III – Its normal axis
- If the R dominant only in lead I and negative in lead III – Left axis deviation
- If the R dominant only in lead III and negative in lead I – Right axis deviation
- If in both leads R wave is negative – Extreme deviation
- Then comment about the axis

In this ECG the cardiac axis is left axis deviation

Diagnosis

- This ECG is diagnosis and comment the findings

This ECG show features of Brugada syndrome. Where they have down sloping ST elevation in V1 – V3

Management

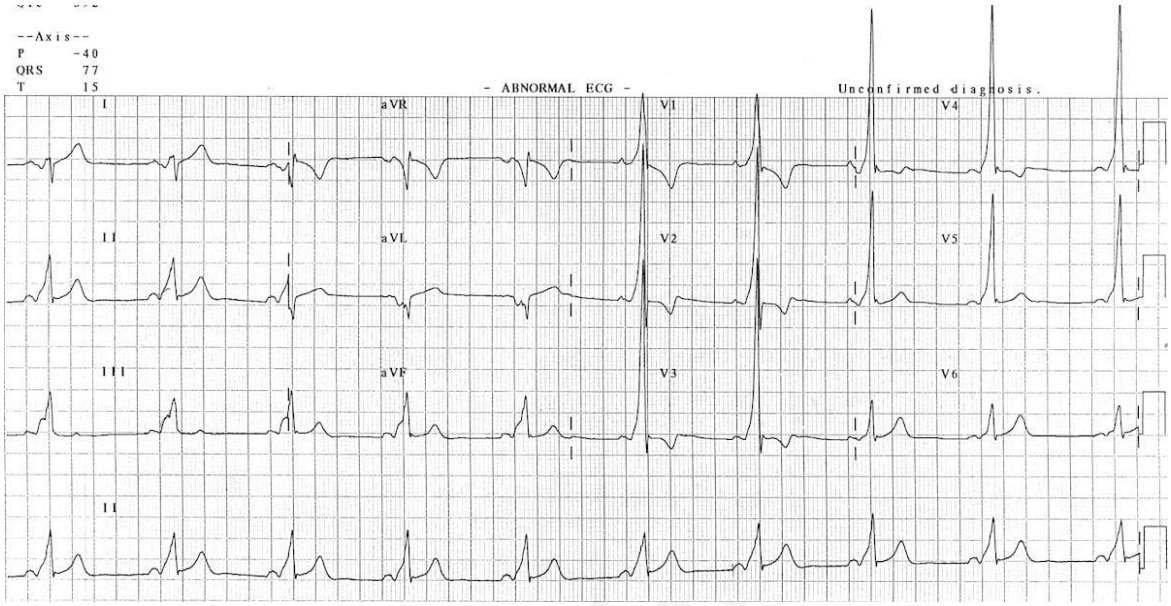
- Keep the patient in the resuscitation area
- Connect to cardiac monitoring
- Collect blood for routine investigations and cardiac enzymes

Dr Manvan Kaur

- Call cardiologist
- Do examination for heart and lung

This patient can go any time in to cardiac arrest with cardiac arrythmia and the definitive management is implantation of an implantable cardioverter defibrillator (ICD)

Wolf Parkinson's white syndrome



Leads

- You have 12 leads which are limb leads and chest leads. Limb leads are lead I, II, III, aVL, aVR, aVF. Chest leads are V1 – V6.

Seconds

- Each lead is 2.5s and last strip is 10s. It could be V1, Lead II, or V5

Squares

- Each large square – 0.2s It contains 5 small squares and each small square is 0.04s

Waves

- The normal wave P, QRS, T. P wave represents the atrial depolarization, QRS represent ventricular depolarization, T wave represent ventricular repolarization – If find any abnormality (mention in the same time)

In this ECG there is with P, QRS, and T with an additional wave in the QRS called delta wave. Because of this the PR interval is short and QRS interval is prolonged.

Heart rate

- It is measured by 300 divided by RR big boxes. – Calculate the HR in the ECG

The heart rate in this ECG is 300/5 = 60bpm

Heart rhythm

- Should be sinus rhythm and regular. P wave should be present. Hear the P wave is absent and regular rhythm

Normal sinus rhythm

Heart Axis

- Check lead I and lead III.
- If you find R dominant in lead I and lead III – Its normal axis
- If the R dominant only in lead I and negative in lead III – Left axis deviation
- If the R dominant only in lead III and negative in lead I – Right axis deviation
- If in both leads R wave is negative – Extreme deviation
- Then comment about the axis

The cardiac axis is right axis deviation

Diagnosis

- This ECG is diagnosis and comment the findings

The diagnosis is here is Wolf Parkinson's Syndrome where we find specific wave called the delta wave.

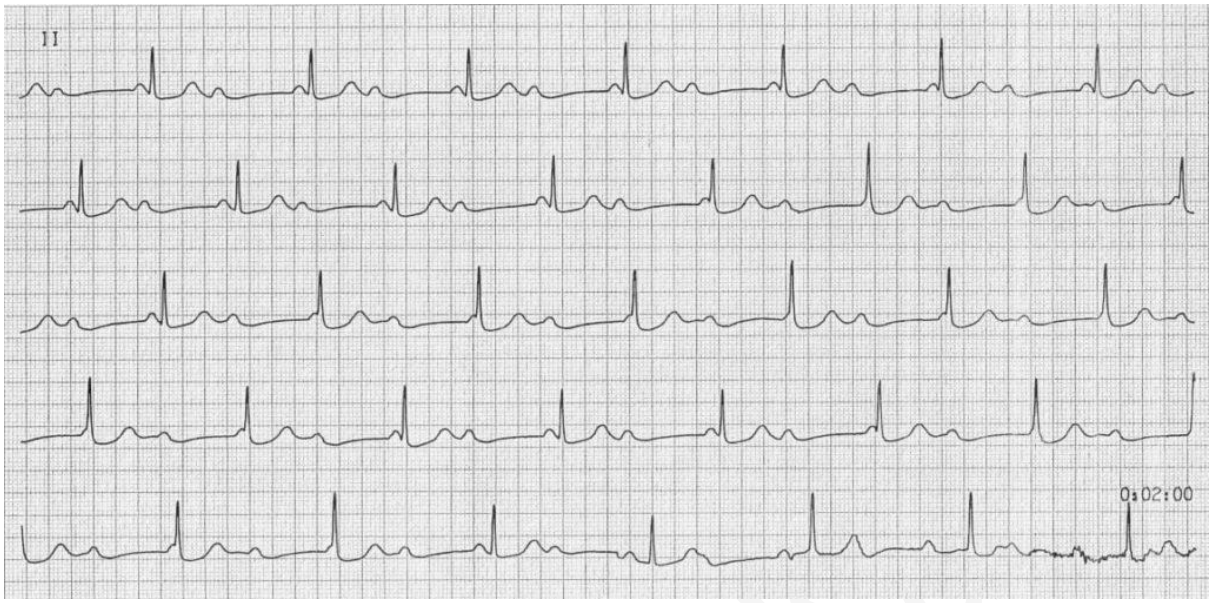
Management

- Keep the patient in the resuscitation area
- Connect to cardiac monitoring
- Collect blood for routine investigations and cardiac enzymes
- Call cardiologist
- Do examination for heart and lung

Definitive management - Cardiac ablation of the accessory pathway.

Dr Marwan Kabir

Heart block



Leads

- You have 12 leads which are limb leads and chest leads. Limb leads are lead I, II, III, aVL, aVR, aVF. Chest leads are V1 – V6.

Seconds

- Each lead is 2.5s and last strip is 10s. It could be V1, Lead II, or V5

Squares

- Each large square – 0.2s It contains 5 small squares and each small square is 0.04s

Waves

- The normal wave P, QRS, T. P wave represents the atrial depolarization, QRS represent ventricular depolarization, T wave represent ventricular repolarization – If find any abnormality (mention in the same time)

Between the R waves there are 2 waves and there is dropped QRS. So, this represents Heart block.

Heart rate

- It is measured by 300 divided by RR big boxes. – Calculate the HR in the ECG

Heart rate = 300 / 7 = 45 bpm. This is the ventricular rate and Atria rate is big box between P waves is 300/3 = 100bpm. So, there is dissociation of atrial and ventricular rate.

Heart rhythm

- Should be sinus rhythm and regular. P wave should be present. Hear the P wave is absent and regular rhythm

Normal sinus rhythm

Heart Axis

- Check lead I and lead III.
- If you find R dominant in lead I and lead III – Its normal axis
- If the R dominant only in lead I and negative in lead III – Left axis deviation
- If the R dominant only in lead III and negative in lead I – Right axis deviation
- If in both leads R wave is negative – Extreme deviation
- Then comment about the axis

Normal axis

Diagnosis

- This ECG is diagnosis and comment the findings

This patient is having bradycardia. Because the heart rate is less than 60bpm. This is the ventricular rate and Atria rate is big box between P waves is 300/3 = 100bpm. So, there is dissociation of atrial and ventricular rate.

If there is dropped QRS complex between RR with P wave it could be either 2nd degree type 2 or 3rd degree. If the RR and PP is equal then it is 2nd degree and if the RR and PP is not equal then it is 3rd degree.

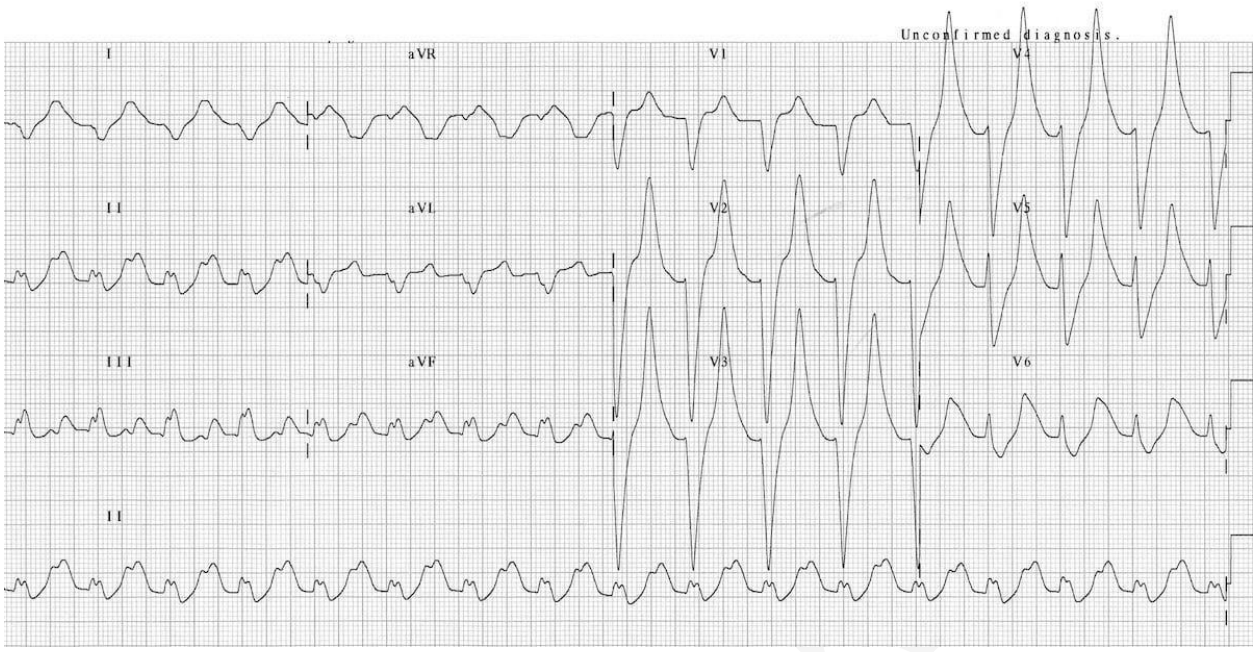
Management

- Keep the patient in the resuscitation area
- Connect to cardiac monitoring
- Collect blood for routine investigations and cardiac enzymes
- Call cardiologist
- Do examination for heart and lung
- Follow Tachy/ Brady cardiac algorhytham /specific management

If this patient is stable, we can monitor. If unstable give atropine up to 0.5 mg every 5 min up to 3mg. If not improve then go for Iv isoprenaline 5mcg/min and if no improvement go for trans cutaneous phasing. The definitive management is trans venous phasing.

Dr Manwan Kaur

Hyperkalemia



Leads

- You have 12 leads which are limb leads and chest leads. Limb leads are lead I, II, III, aVL, aVR, aVF. Chest leads are V1 – V6.

Seconds

- Each lead is 2.5s and last strip is 10s. It could be V1, Lead II, or V5

Squares

- Each large square – 0.2s It contains 5 small squares and each small square is 0.04s

Waves

- The normal wave P, QRS, T. P wave represents the atrial depolarization, QRS represent ventricular depolarization, T wave represent ventricular repolarization – If find any abnormality (mention in the same time)

T waves are considered tall if they are > 5mm in limb leads AND > 10mm in chest leads. Here in chest leads the T waves are 35mm and in limb leads 6mm.

Heart rate

- It is measured by 300 divided by RR big boxes. – Calculate the HR in the ECG

Heart rate = 300/3 = 100bpm

Heart rhythm

- Should be sinus rhythm and regular. P wave should be present. Hear the P wave is absent and regular rhythm

P waves are absent and there is widening of the QRST segment with formation of sign wave.

Heart Axis

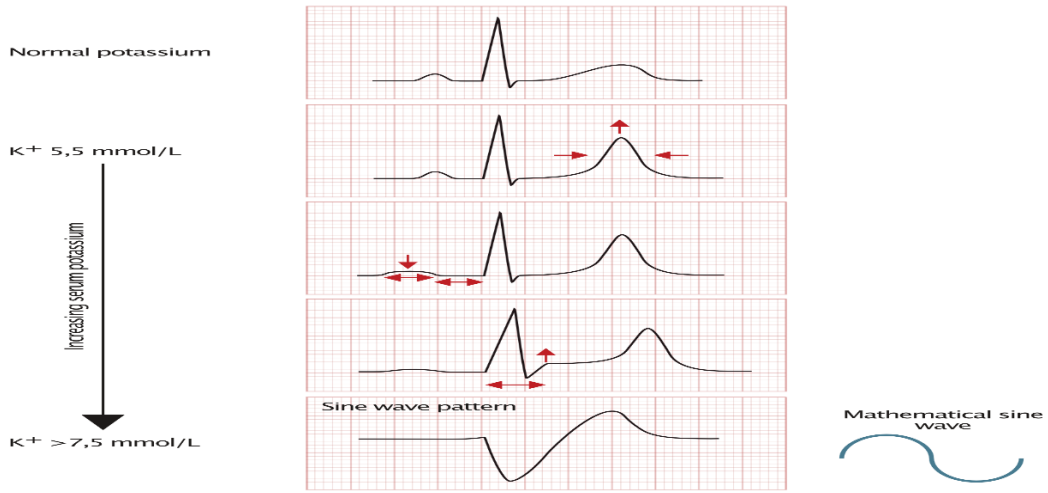
- Check lead I and lead III.
- If you find R dominant in lead I and lead III – Its normal axis
- If the R dominant only in lead I and negative in lead III – Left axis deviation
- If the R dominant only in lead III and negative in lead I – Right axis deviation
- If in both leads R wave is negative – Extreme deviation
- Then comment about the axis

Heart axis is - Normal

Diagnosis

- This ECG is diagnosis and comment the findings

This correlates with the findings of hyperkalemia. Where there is T waves with formation of sign wave.

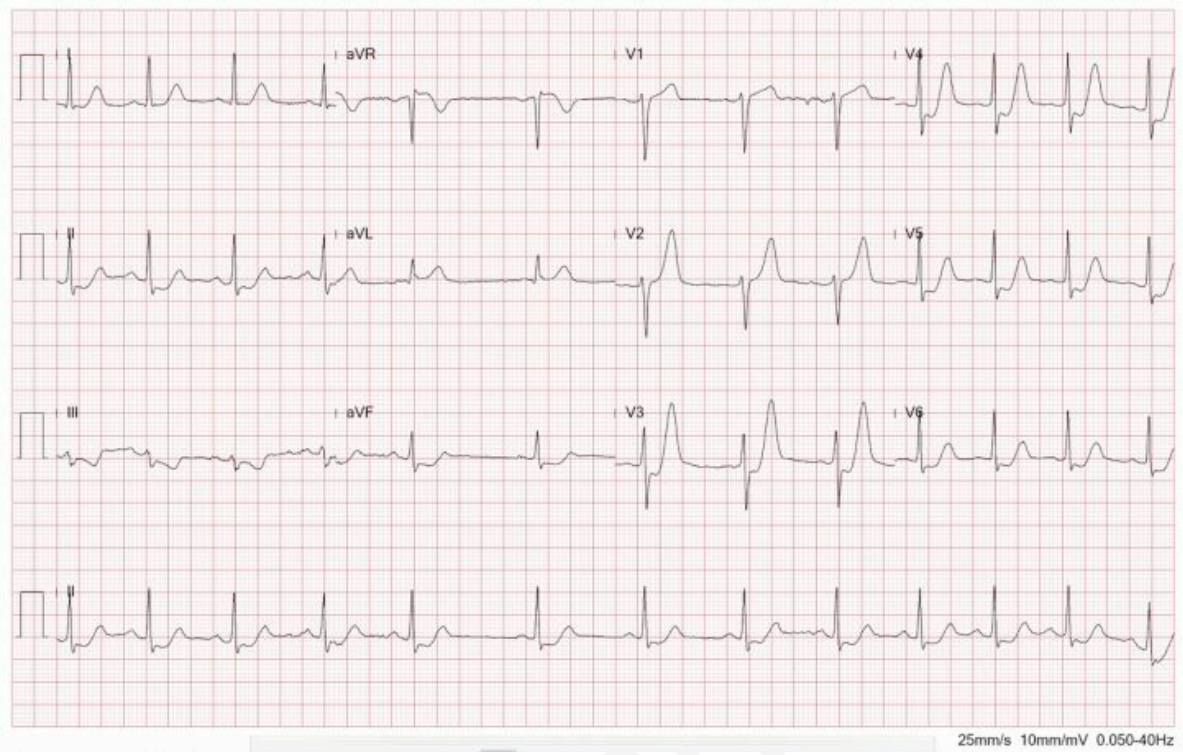


Management

- Keep the patient in the resuscitation area
- Connect to cardiac monitoring
- Collect blood for routine investigations and cardiac enzymes
- Call cardiologist
- Do examination for heart and lung

This patient needs immediate correction. First need to give Calcium gluconate 10% over 10min. Then Give salbutamol nebulization and glucose insulin infusion to correct the high K levels. Should find out the cause for the high potassium levels for definitive treatment

De Winter patterns



Leads

- You have 12 leads which are limb leads and chest leads. Limb leads are lead I, II, III, aVL, aVR, aVF. Chest leads are V1 – V6.

Seconds

- Each lead is 2.5s and last strip is 10s. It could be V1, Lead II, or V5

Squares

- Each large square – 0.2s It contains 5 small squares and each small square is 0.04s

Waves

- The normal wave P, QRS, T. P wave represents the atrial depolarization, QRS represent ventricular depolarization, T wave represent ventricular repolarization – If find any abnormality (mention in the same time)

Tall prominent symmetrical waves in chest leads. Upsloping ST segment depression in chest leads. Reciprocal ST segment elevation > 0.5mm in aVR.

Heart rate

- It is measured by 300 divided by RR big boxes. – Calculate the HR in the ECG

Heart rate = 300/4 = 75bpm

Heart rhythm

- Should be sinus rhythm and regular. P wave should be present. Hear the P wave is absent and regular rhythm

All QRS complex followed by the p waves and it is regular

Heart Axis

- Check lead I and lead III.
- If you find R dominant in lead I and lead III – Its normal axis
- If the R dominant only in lead I and negative in lead III – Left axis deviation
- If the R dominant only in lead III and negative in lead I – Right axis deviation
- If in both leads R wave is negative – Extreme deviation
- Then comment about the axis

This ECG shows normal axis

Diagnosis

- This ECG is diagnosis and comment the findings

The finding of this ECG correlates with De Winter syndrome. Where there are upsloping ST segment depression and reciprocal changes in aVR.

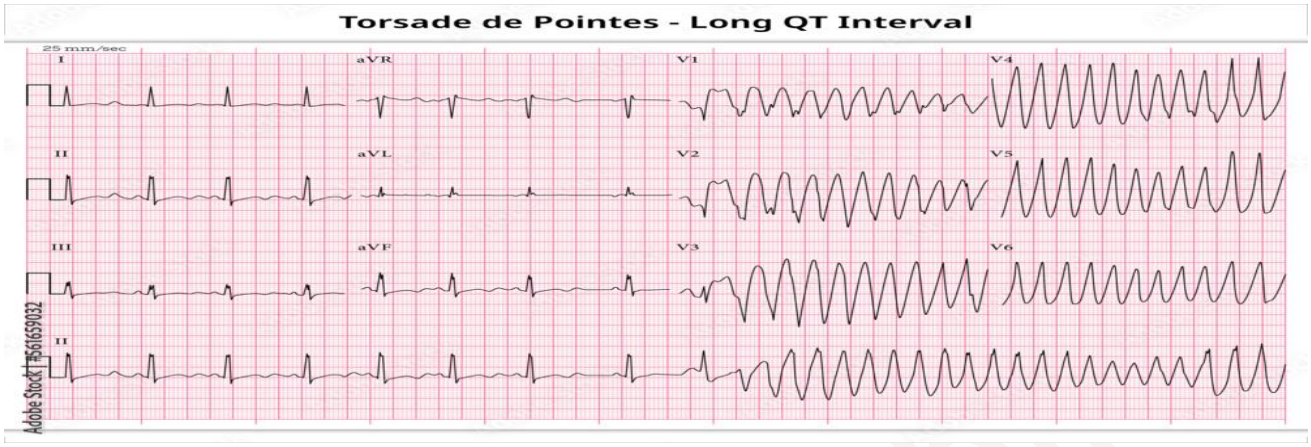
Management

- Keep the patient in the resuscitation area
- Connect to cardiac monitoring
- Collect blood for routine investigations and cardiac enzymes
- Call cardiologist
- Do examination for heart and lung

Give aspirin 300mg and clopidogrel 300mg and activate the cath-lab

Dr Marwan Kabir

Torsades de pointes



Leads

- You have 12 leads which are limb leads and chest leads. Limb leads are lead I, II, III, aVL, aVR, aVF. Chest leads are V1 – V6.

Seconds

- Each lead is 2.5s and last strip is 10s. It could be V1, Lead II, or V5

Squares

- Each large square – 0.2s It contains 5 small squares and each small square is 0.04s

Waves

- The normal wave P, QRS, T. P wave represents the atrial depolarization, QRS represent ventricular depolarization, T wave represent ventricular repolarization – If find any abnormality (mention in the same time)

Shows change in amplitude and twisting of QRS complex around the isoelectric line. There is prolonged QT segment which is calculated by QTc = QT/√RR (males < 430mm, females < 450mm, children < 440mm)

Heart rate

- It is measured by 300 divided by RR big boxes. – Calculate the HR in the ECG

Initially heart Rate = 300/3 = 100bpm and it become 300/1 = 300bpm

Heart rhythm

- Should be sinus rhythm and regular. P wave should be present. Hear the P wave is absent and regular rhythm

All QRS follow P and then the QRS become wide and there is absent P waves and the rhyhm become irregular.

Heart Axis

- Check lead I and lead III.
- If you find R dominant in lead I and lead III – Its normal axis

- If the R dominant only in lead I and negative in lead III – Left axis deviation
- If the R dominant only in lead III and negative in lead I – Right axis deviation
- If in both leads R wave is negative – Extreme deviation
- Then comment about the axis

Normal axis

Diagnosis

- This ECG is diagnosis and comment the findings

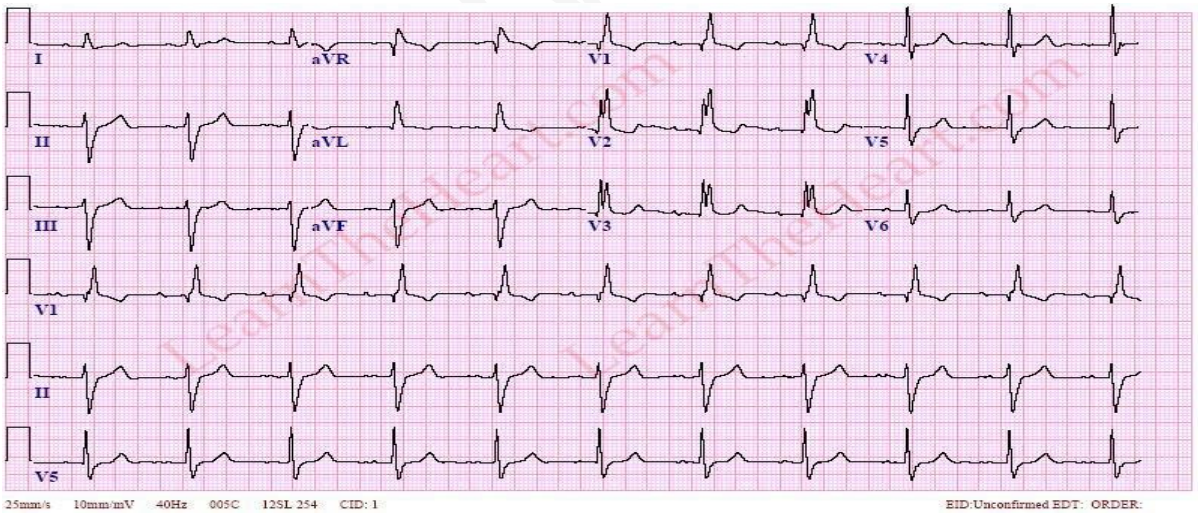
Finding suggestive Torsade de pointes where initially the waves shows Long QT segment and then it changes to wide complex irregular tachycardia which is suggestive.

Management

- Keep the patient in the resuscitation area
- Connect to cardiac monitoring
- Collect blood for routine investigations and cardiac enzymes
- Call cardiologist
- Do examination for heart and lung
- Follow Tachy/ Brady cardiac algorhytham /specific management

This condition is due to low magnesium levels and congenital long QT syndrome. If the patient stable we can give IV magnesium sulphate 2g over 10 min and if the patient is unstable needs DC shock.

Trifascicular block



Leads

- You have 12 leads which are limb leads and chest leads. Limb leads are lead I, II, III, aVL, aVR, aVF. Chest leads are V1 – V6.

Seconds

- Each lead is 2.5s and last strip is 10s. It could be V1, Lead II, or V5

Squares

- Each large square – 0.2s It contains 5 small squares and each small square is 0.04s

Waves

- The normal wave P, QRS, T. P wave represents the atrial depolarization, QRS represent ventricular depolarization, T wave represent ventricular repolarization – If find any abnormality (mention in the same time)

Each PR interval should be 0.12 (3 small boxes). Hear the PR interval is 5 small boxes. In the Lead V1 the QRS complex shows positive rSR pattern with slurred S wave in V6 which indicated right bundle branch block.

Heart rate

- It is measured by 300 divided by RR big boxes. – Calculate the HR in the ECG

Heart rate is 300/4 = 75bpm

Heart rhythm

- Should be sinus rhythm and regular. P wave should be present. Hear the P wave is absent and regular rhythm

Each QRS is followed by the P wave and this is normal sinus rhythm.

Heart Axis

- Check lead I and lead III.
- If you find R dominant in lead I and lead III – Its normal axis
- If the R dominant only in lead I and negative in lead III – Left axis deviation
- If the R dominant only in lead III and negative in lead I – Right axis deviation
- If in both leads R wave is negative – Extreme deviation
- Then comment about the axis

Here the axis is right axis deviation

Diagnosis

- This ECG is diagnosis and comment the findings

The findings in ECG is suggestive of trifascicular block, which comprises of prolonged PR interval and right bundle branch block with right axis deviation.

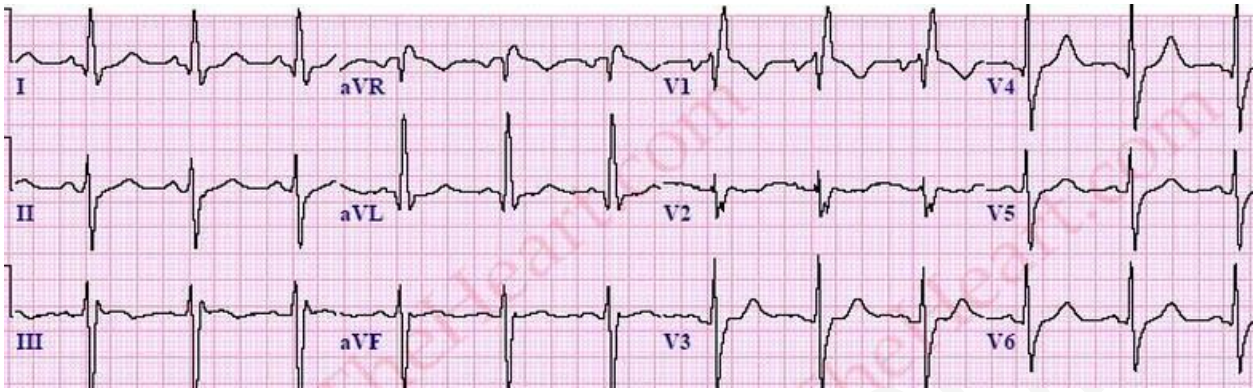
Management

- Keep the patient in the resuscitation area
- Connect to cardiac monitoring
- Collect blood for routine investigations and cardiac enzymes
- Call cardiologist
- Do examination for heart and lung

Dr Wanwan Kabir

If the patient is not symptomatic, we can observe without intervention. If patient develop syncopal attacks needs pacemaker.

Bifasicular Block



Here if you see a M or dominant R in V1 and slurred S wave in V5 – That is suggestive of Right bundle branch block

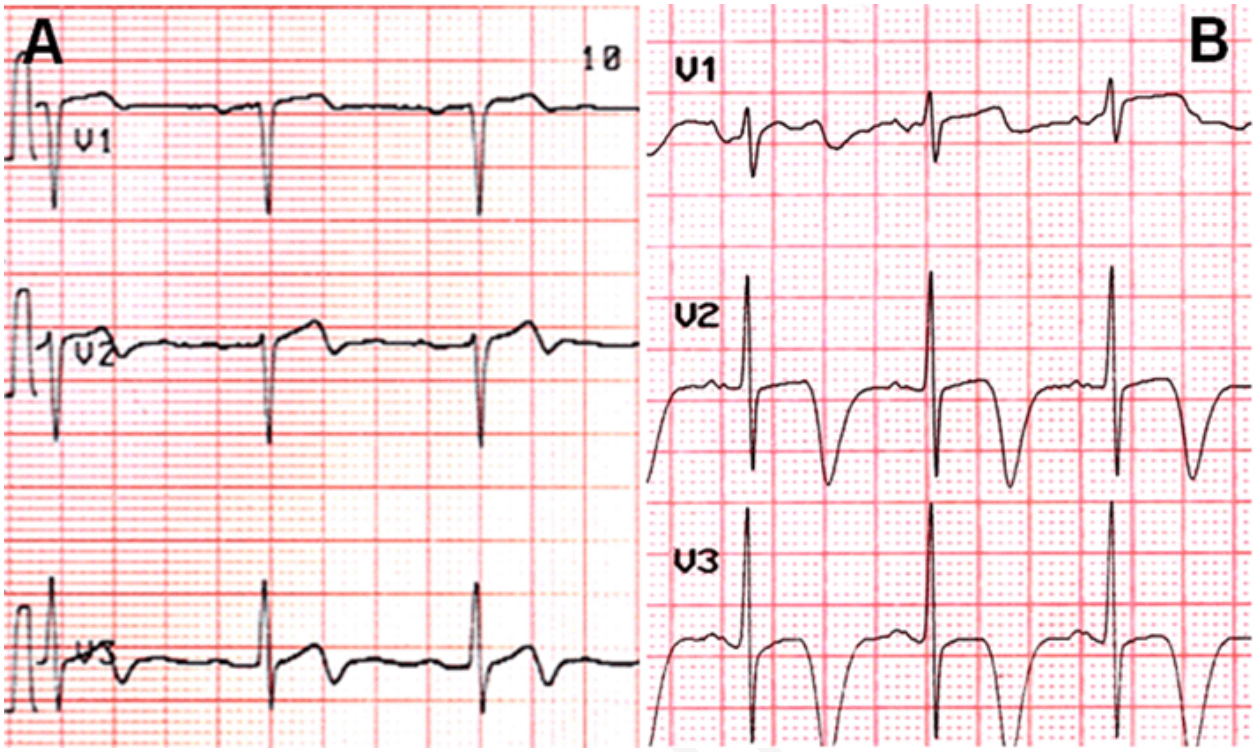
If you find RBBB – then look for High lateral leads (Lead1 and aVL) and inferior Leads(II, III, aVF)

- If Lead I and aVL are dominant R with II, III, aVF are having negative – Left anterior Hemiblock
- If lead I, aVL are negative and II, III, aVF are positive – Left posterior Hemiblock

The above ECG is RBBB with lead 1, aVL are positive and II, III, aVF are negative so bifasicicular block with left anterior hemiblock

This has RBBB, and I n this ECG there is Positive II, III, aVF and negative Lead I and aVL – left posterior hemiblock with RBBB

Wellens syndrome



Leads

- You have 12 leads which are limb leads and chest leads. Limb leads are lead I, II, III, aVL, aVR, aVF. Chest leads are V1 – V6.

Seconds

- Each lead is 2.5s and last strip is 10s. It could be V1, Lead II, or V5

Squares

- Each large square – 0.2s It contains 5 small squares and each small square is 0.04s

Waves

- The normal wave P, QRS, T. P wave represents the atrial depolarization, QRS represent ventricular depolarization, T wave represent ventricular repolarization – If find any abnormality (mention in the same time)

First one shows biphasic T waves in the chest leads (type A) and 2nd one shows deep T wave inversion (Type B) indicating critical stenosis of the left anterior descending artery.

Heart rate

- It is measured by 300 divided by RR big boxes. – Calculate the HR in the ECG

DrNarwani

Heart rhythm

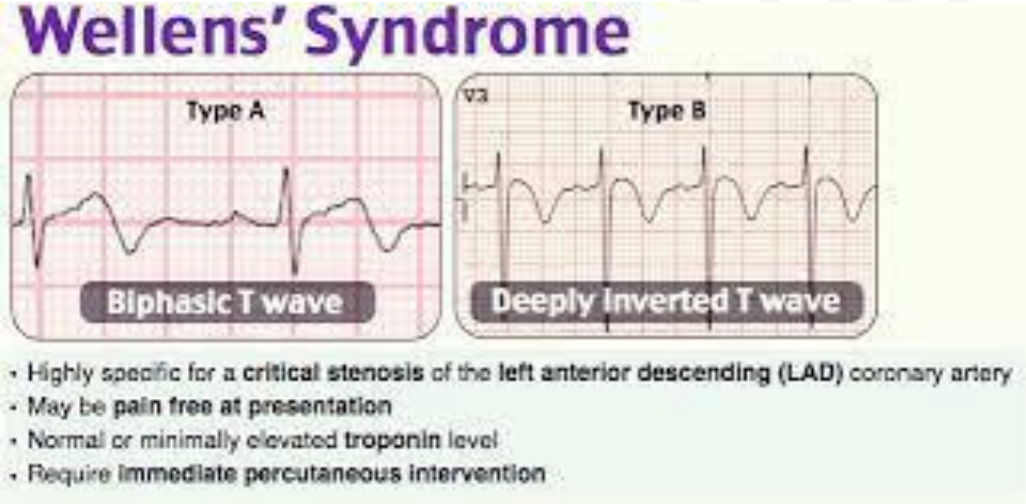
- Should be sinus rhythm and regular. P wave should be present. Hear the P wave is absent and regular rhythm

Heart Axis

- Check lead I and lead III.
- If you find R dominant in lead I and lead III – Its normal axis
- If the R dominant only in lead I and negative in lead III – Left axis deviation
- If the R dominant only in lead III and negative in lead I – Right axis deviation
- If in both leads R wave is negative – Extreme deviation
- Then comment about the axis

Diagnosis

- This ECG is diagnosis and comment the findings

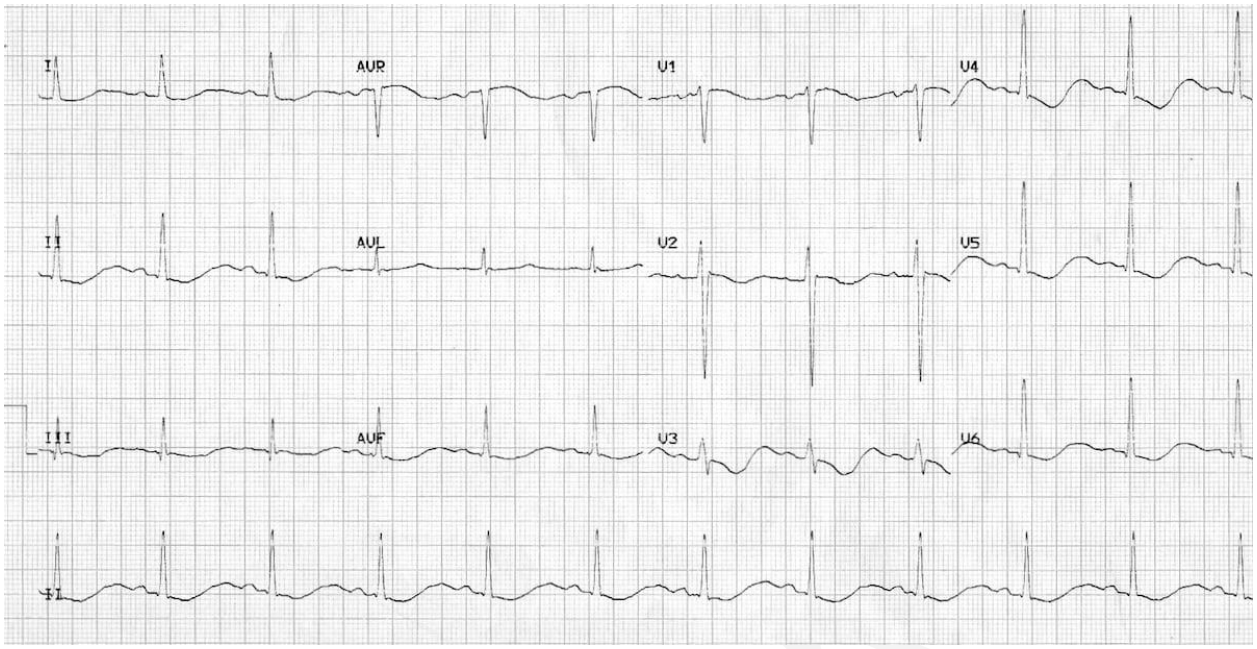

Wellens' Syndrome
Type A
Biphasic T wave
Type B
Deeply inverted T wave
• Highly specific for a critical stenosis of the left anterior descending (LAD) coronary artery
• May be pain free at presentation
• Normal or minimally elevated troponin level
• Require immediate percutaneous intervention

Management

- Keep the patient in the resuscitation area
- Connect to cardiac monitoring
- Collect blood for routine investigations and cardiac enzymes
- Call cardiologist
- Do examination for heart and lung

Definitive treatment is PCI

Hypokalemia



Leads

- You have 12 leads which are limb leads and chest leads. Limb leads are lead I, II, III, aVL, aVR, aVF. Chest leads are V1 – V6.

Seconds

- Each lead is 2.5s and last strip is 10s. It could be V1, Lead II, or V5

Squares

- Each large square – 0.2s It contains 5 small squares and each small square is 0.04s

Waves

- The normal wave P, QRS, T. P wave represents the atrial depolarization, QRS represent ventricular depolarization, T wave represent ventricular repolarization – If find any abnormality (mention in the same time)

T wave flattening and prominent U wave.

Heart rate

- It is measured by 300 divided by RR big boxes. – Calculate the HR in the ECG

HR = 300/4 = 75bpm

Heart rhythm

- Should be sinus rhythm and regular. P wave should be present. Hear the P wave is absent and regular rhythm

Each QRS followed by P wave and the rhythm is regular

Heart Axis

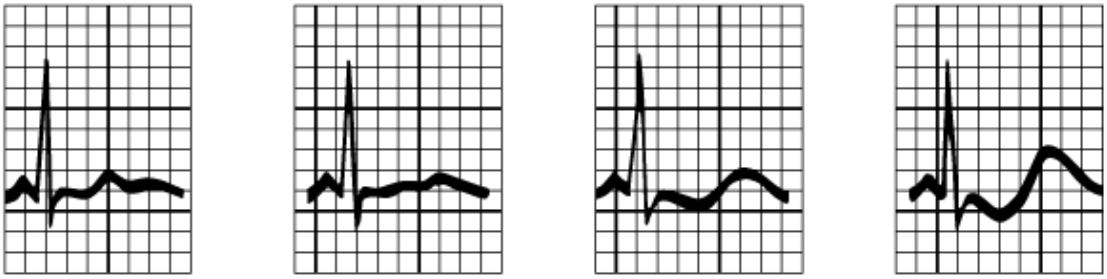
- Check lead I and lead III.
- If you find R dominant in lead I and lead III – Its normal axis
- If the R dominant only in lead I and negative in lead III – Left axis deviation
- If the R dominant only in lead III and negative in lead I – Right axis deviation
- If in both leads R wave is negative – Extreme deviation
- Then comment about the axis

Heart axis – normal axis

Diagnosis

- This ECG is diagnosis and comment the findings

Finding suggestive of hypokalemia.



Management

- Keep the patient in the resuscitation area
- Connect to cardiac monitoring
- Collect blood for routine investigations and cardiac enzymes
- Call cardiologist
- Do examination for heart and lung

If the patient is stable, we can give 40mmol/l potassium over 4 hrs in 1000ml normal saline. If not stable should give 10mmol/l over 1 hr

Arterial blood gas interpretation

Learning Objectives

- Normal values of PH, PaCO2, PaO2, HCO2, K, Na, Lactate, Be
- Diagnosis of ABG
- Diagnosis of the condition
- Management of the condition

Normal values

- PH = 7.35 – 7.45
- PaCO2 = 35 – 45 mmHg (4.5 – 6 kPa)
- PaO2 = 80 – 100 mmHg (11 – 14 kPa)
- HCO3 = 25 – 30 mg/dl
- K = 3.5 – 5.1 mmol/l
- Na = 135 – 145 mmol/l
- Lactate = < 2
- BE = -2 to +2

Diagnosis of ABG

1. PH, PaCO2, HCO3 – if all Acidosis or alkalosis – mixed acidosis, If Alkalosis mixed Alkalosis
2. PaCO2 and HCO3 – If Both High or Low - Partial compensation
3. If HCO3 or PaCO3 is normal or both High or low and PH is normal or Any of them normal – Uncompensated
4. PO2 – 50 – 80 mmHg is hypoxia, If < 50 mmHg – Type II respiratory failiure

Diagnosis of the condition

Case - 1 = Case with 3 weeks old baby with vomiting

PH – 7.5, PaCO2 – 50, PaO2 – 85, HCO3 – 35, K – 3, Na – 135, Lactate – 2, BE – 4

- Hear the PH is high so it is alkalosis,
- The PCO2 is also high – it goes towards the metabolic acidosis
- The HCO3 and BE are high – So it goes towards the metabolic alkalosis
- So, with the findings of the PH the diagnosis will be Metabolic alkalosis.

The cause for the metabolic alkalosis is – we have look at the history

This is a 3 weeks old child with vomiting

So, the differential diagnosis can be

- Acute gastroenteritis
- Sepsis
- Congenital problem

As they have not mentioned the onset of the vomiting, we cannot rule out the congenital problems

As the lactate is normal, we can exclude the sepsis and infections.

If chronic problems we have to do USS to exclude congenital hypertrophic pyloric stenosis

Dr Marwan Kabir

Partial or compensation

Here the PCO2 and HCO3 are in high side – so this is partial compensated metabolic acidosis.

Management

- Keep the patient in observation
- Give O2
- Give fluids
- Call the pediatrician
- Take blood for biochemistry, hematology, toxicology and culture
- Will do USS If suspected congenital abnormalities if symptoms since birth

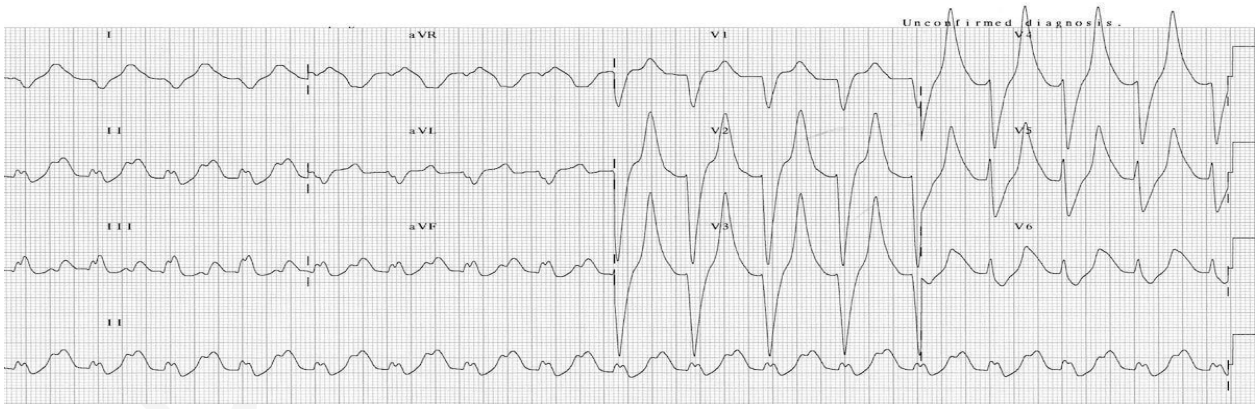
---

Case - 2: ABG of a known patient with CKD

PH = 7.0, PCO2 = 4.1 (4.5 – 6), PO2 = 10.2 (11 – 14), HCO3 = 15 (25 – 30), K = 8 mmol/l, Na = 125 mmol/l, BE = -2, Lactate = 3.5

Diagnosis

- Here, the PH is in lower side so it is acidosis
- The PCO2 is Lower side – respiratory alkalosis
- HCO3 – lower side – Metabolic acidosis
- So, the diagnosis is – Metabolic acidosis
- Then you see the K is 8 and Na is 125. The K value can be wrong as this can be due to hemolysis. So, we have to confirm this with doing an ECG.



Yeah, this ECG shows hyperacute T waves with formation of sign wave. So, this is suggestive of hyperkalemia.

In the ABG the PCO2 and HCO3 are in lower side. This is a partial compensated metabolic acidosis. In a patient with CKD where there is hyperkalemia which most probably due to missed dialysis or any acute sepsis.

Management

- We have to keep the patient in resuscitation area
- Connect the cardiac monitor
- Examination of the heart and abdomen.

- IV access and take blood for biochemistry, hematology, blood gasses and cardiac enzyme
- We should give calcium gluconate 10% 10ml over 10min.
- Then start on potassium lowering therapy with glucose and insulin infusion an salbutamol nebulization.
- Should discuss with the nephrologist regarding dialysis.

Case – 3: Patient with COPD

PH = 7.2, HCO3 = 70mmHg, PO2 = 85mmHg, HCO3 = 35mmol/l, Na = 130mmol/l, K = 2.5mmol/l, BE = 2, Lactate = 4

Diagnosis

- PH is lower side – Acidosis
- PCO2 is very high so this is respiratory acidosis.
- HCO3 is high – this is metabolic acidosis
- The diagnosis is respiratory acidosis.
- In this case the PH is low with very high PCO2 and high HCO3 – so, this is acute on chronic partially compensated respiratory acidosis.
- PO2 is normal – so patient is not on any respiratory failiure
- The lactate is high – this due to infection
- There is low K values also

Management

- Keep the patient in resuscitation room
- Connect the patient to the monitors and do examination of the lung and heart
- Give O2 via venturi mask and maintain the SPO2 within 88 – 92%
- Take IV access and take blood for hematology biochemistry, blood gasses and septic screening.
- We can give bronchodilators and if no improvement can give hydrocortisone.
- Can send sputum for culture and call the respiratory physician
- If the patient symptomatic we can give IV potassium 10mmol/l over 1 hr. and not symptomatic – can give oral.
- If there is no improvement with bronchodilators – we can go for Non-Invasive Ventilation.

Case = 4 – Patient with acute exacerbation of asthma

PH = 7.12, PaCO2 = 12.8 kPa, HCO3 = 35 mmol/l, PaO2 = 19.3 kPa, BE = -1

Diagnosis

- PH is low – acidosis
- PCO2 is high – respiratory acidosis
- HCO3 is high – metabolic acidosis
- Diagnosis is respiratory acidosis
- The HCO3 and PCO2 are in high side – Partially compensated respiratory acidosis due acute exacerbation of asthma.

Dr Nawan Kabir

Management

- Keep in the resuscitation room and give high flow O2
- Will connect to monitor and do examination of lung and heart.
- Get IV access and take blood for hematology, biochemistry, Blood gasses
- I will give hydrocortisone and give bronchodilators
- Will call respiratory physician for further management.

Case 5 = Known patient with COPD on Home O2

PH = 7.38, PCO2 = 8 kPa, HCO3 = 33mmol/l, PaO2 = 8 kPa

Diagnosis

- PH is normal
- PCO2 is High – respiratory acidosis
- HCO3 is High – Metabolic alkalosis
- Diagnosis is compensated respiratory acidosis
- PO2 is low – respiratory failure
- Diagnosis is fully compensated v=chronic respiratory acidosis with type 2 respiratory failure.

Case 6 – 27 yrs old patient with lethargy

PH = 7.1, PCO2 = 4.5 kPa, PO2 = 3 kPa, HCO3 = 12 mmol/l, Na – 137 mmol/l, K = 5.4 mmol/l, Cl = 113mmol/l, Glucose = 4 mmol/l

Diagnosis

- PH is low = acidosis
- PCO2 is normal
- HCO3 is low – Metabolic acidosis
- Anion gap – (Na + K) – (Cl + HCO3) = (137 + 5.4) – (113 + 12) = 142.4 – 125 = 17.4 (< 18 normal)

Normal anion gap metabolic acidosis – USEDCARP

- U – ureteric diversion
- S – Sigmoid fistula
- E – Excess saline
- D – Diarrhea
- C – carbonic anhydrase inhibitors
- A – Addison's
- R – Renal tubular acidosis
- P – Pancreatic fistulas

High anion Gap metabolic acidosis – MUDPILES

- M – Methanol
- U – Uremia

Dr Nawan Kabir

- D – Diabetic ketoacidosis
- P – Paraldehyde
- I – Iron, Isoniazid
- L – Lactic acidosis
- E – Ethylene glycol
- S – Salicylates

Local anesthesia toxicity teaching

Learning objectives

1. What is Local anesthesia
2. Talk about –
    a. Lidocaine – short acting, dose – 3mg/kg
    b. Prilocaine – 6mg/kg
    c. Bupivacaine - 2mg/kg
3. Indication – To numb the area
4. Contraindication – LA allergy
5. Complications – LA Toxicity
    a. Mild – Metallic taste in the mouth
    b. Moderate – Collapse, unconscious, hypotension
    c. Sever – Any life-threatening condition, Cardiac arrest
6. How to manage the complication
    a. Accurate calculation of dosage
    b. Regular aspiration and infiltration
    c. Use USS guidance
    d. Reduce the dose in extrema ages
7. Management
    a. Stop the LA
    b. Monitored area
    c. Give O2
    d. IV access
    e. Incase patient get cardiac arrest
        i. Call adult resuscitation team
        ii. Follow adult ALS algorhythm
        iii. Indication for intralipid – If patient collapse or arrest

Dr Mahvan Kabir

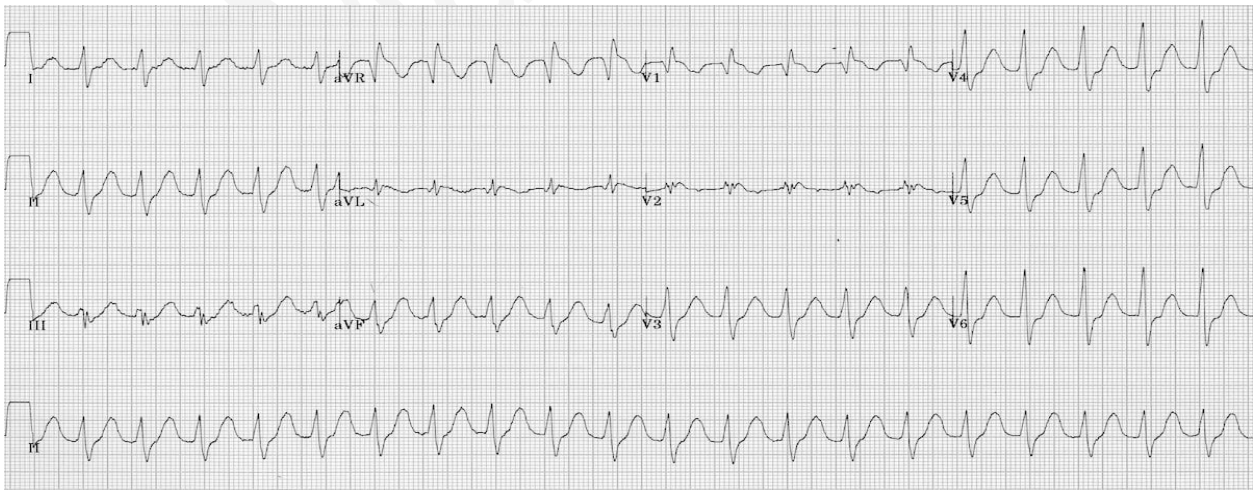
Tricyclic toxicity Teaching

Use the approach of resuscitation

Learning objectives

1. Assessment and management
2. Once the patient arrives keep in the cardiac monitoring
3. If stable – take a brief history

4. History –
    a. What is the name of the drug?
    b. How much the dose? 15mg/kg
    c. How many tablets?
    d. Why?
5. If patient within 1 hr. of ingestion – Give activated charcoal
6. Any toxicity – think about heart and brain
7. If unstable – assess ABCDE
    a. Airway – if patent – give high flow O2
    b. Breathing
    c. Circulation –
        i. IV excess
        ii. Extract blood for hematology, biochemistry, blood gasses, toxicology screening
        iii. If hypotension, give IV fluid
        iv. Do ECG
            1. Sinus tachycardia
            2. PR interval is prolonged
            3. Wide QRS
            4. Dominant R in aVR
        v. If patient having stable arrhythmia - Consider give NaHCO3, MgSO4, Intralipids
        vi. If Unstable arrhythmia – cardioversion – 3 shocks.
        vii. Contraindicated – amiodarone, (also beta blockers and calcium channel blockers)
    d. Disability
        i. If any seizures – give Benzodiazepine
        ii. Contraindicated - phenytoin
    e. Exposure



8. After stabilization we can hand over the patient to the ICU team where patient needs close monitoring.
9. For long term management – we have to psychiatric assessment if the patient is having suicidal intension.

Nawaf Kabir

Pulled elbow Teaching

1st approach nurse

Hallo, I am Dr.Marwan, ED registrar, May I know your name and level please?

Nice to meet you, I believe you have some thing to discuss with me today regarding pulled elbow.

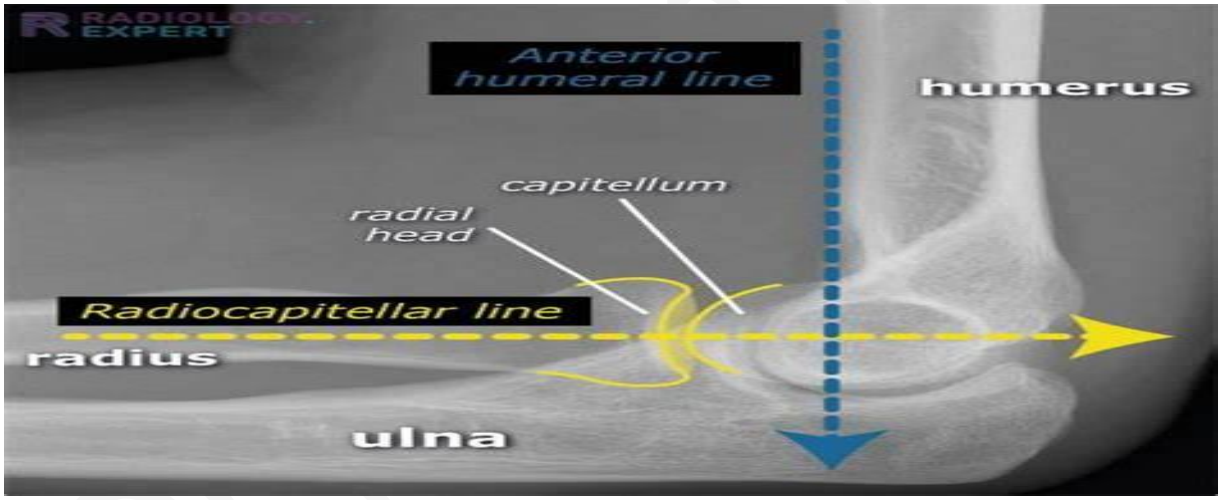
How far do you know so far?

You have a child and you have an x- ray

Do you have any specific area to discuss

I will set you learning objectives

- Teach you the X- ray
- Then I will teach mechanism of injury and pathology
- How to diagnose pulled elbow
- How to do the procedure
- Post procedure assessment



- This is humerus, this is the radius, this is the ulna and this is capitulum
- How to whether there is a fracture
- This is the anterior humeral line and this is the radio capitellar line. Is that clear?
- These 2 lines should transect the capitellum. If there is an abnormality then there is fracture. Most common is the supracondylar fracture. Is that clear?

Mechanism of injury is this happens when there is forceful pulling of the elbow which results in partial dislocation of the radial head from the annular ligament. Is that clear? Ok

Then how to diagnose pulled elbow?

To whether the patient having a suspicion of pulled elbow we should know the history and examination.

- Take history from the mother and she will say no trauma and she pulled the arm. Is that clear? Ok.

- From the examination you will find the patient is putting his arm in abduction, slightly flexion and pronation. Is that clear?
- Child will not cry, but he will not let anyone to touch him. Is that clear?
- Do you need to do X-ray? No, until you find indications to do x-ray

What are the indications?

- Patient having a failed reduction
- Any abnormality like deformity
- history of trauma

How to reduce that

- Take consent from the parent
- Explain the procedure
    - Indication
    - Contraindication
    - Complication
    - How to avoid complication
    - And then do the procedure
- We have 2 techniques
    - Supination then flexion
    - Hyper pronation then flexion

Can we do that in the child? Ok

Approach the baby

Hallo baby. Are you OK?

Verbalize – procedure should be under consent and I will tell the mother that child will not feel pain but some discomfort and once the reduction done, child will not have pain.

I will do it in the normal arm

- Finger and arm in the radial head
- Then I will do supination then flexion
- Then check for success
- I will give him object to hold to touch – If failed I will wait for 15 min and try again

If my child had a pulled elbow once, is he more likely to have it again because his ligament has stretched?

Having a pulled elbow doesn't cause any long-term damage to and won't stretch the ligament. However, some children are more susceptible to getting a pulled elbow more than once because they have loose joints and their radius bone is more likely to slip out.

My child has had a pulled elbow before, and I know how to out the arm back on to place. Is it ok to do this if there are no near doctor?

Never attempt to relocate a pulled elbow x-ray yourself. It should always be managed by a professional.

Dr. Marwan Kabir

My child loves it when I swing her by the hands when we are playing. Is this dangerous?

Even though, it is fun for the child, swinging them by their arms, hands or wrists put them at risk of pulled elbow.

How to prevent pulled elbow?

To prevent a pulled elbow, make sure you don't pick your child up by the lower arms or wrist. Lift them up using their armpits instead. Teach others who care for your child, such as grandparents and child care workers, the correct way to pick up your child

Dr Marwan Kabir